Viking Axe Design:

Reference Picture:

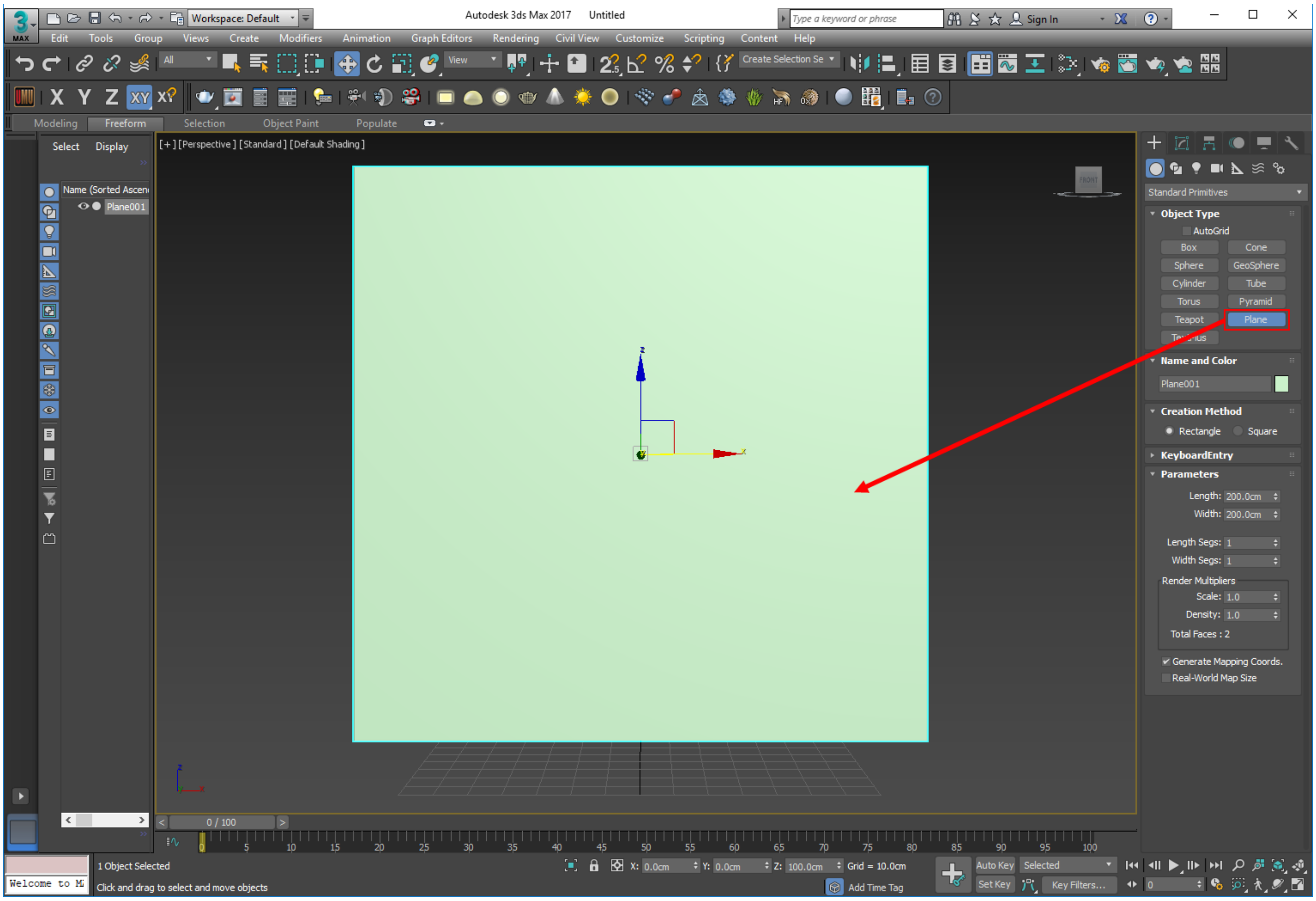
https://www.artstation.com/artwork/rR9zR6

https://skfb.ly/6CZqL

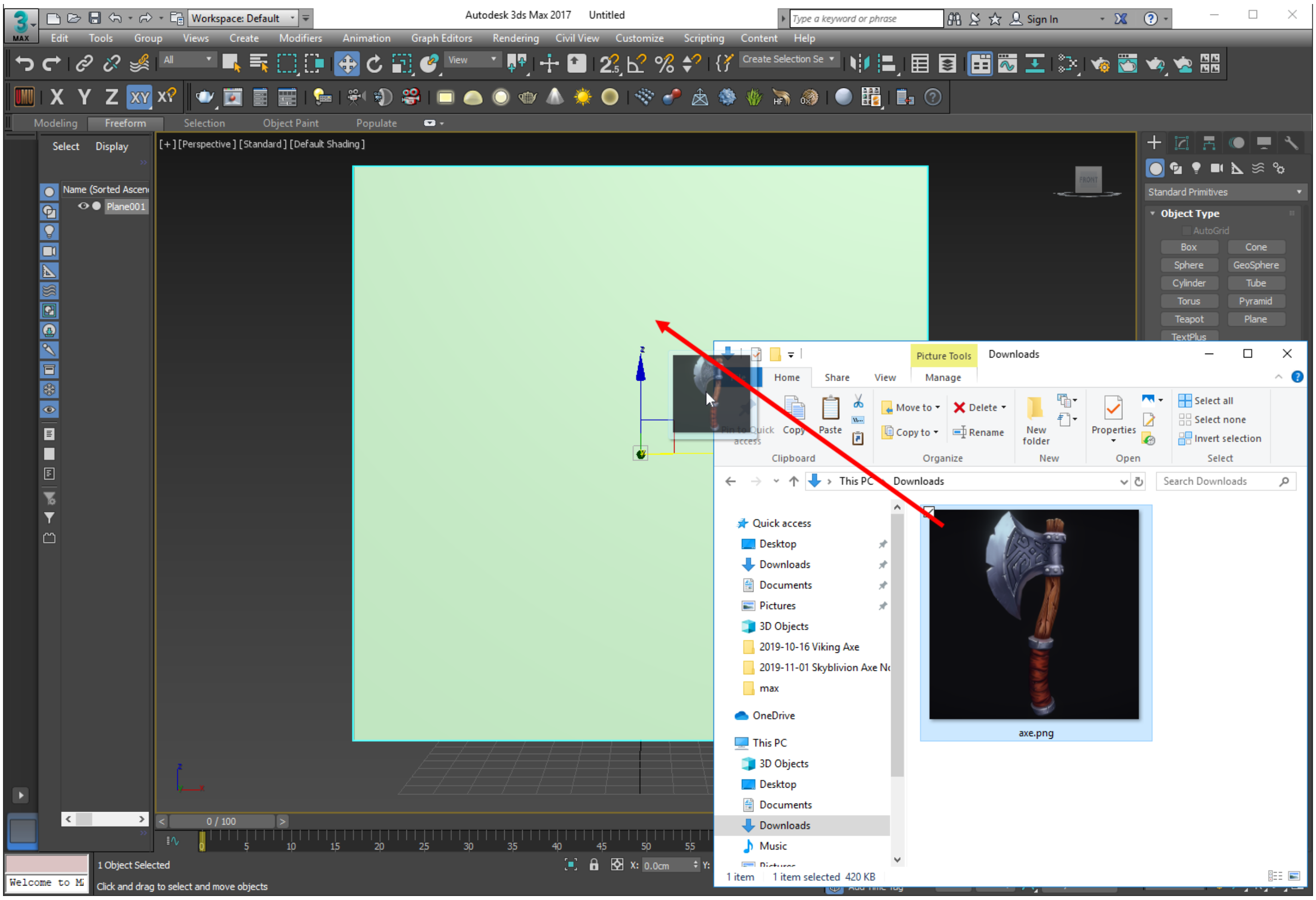
Software using:

3ds Max, Zbrush, Substance Painter

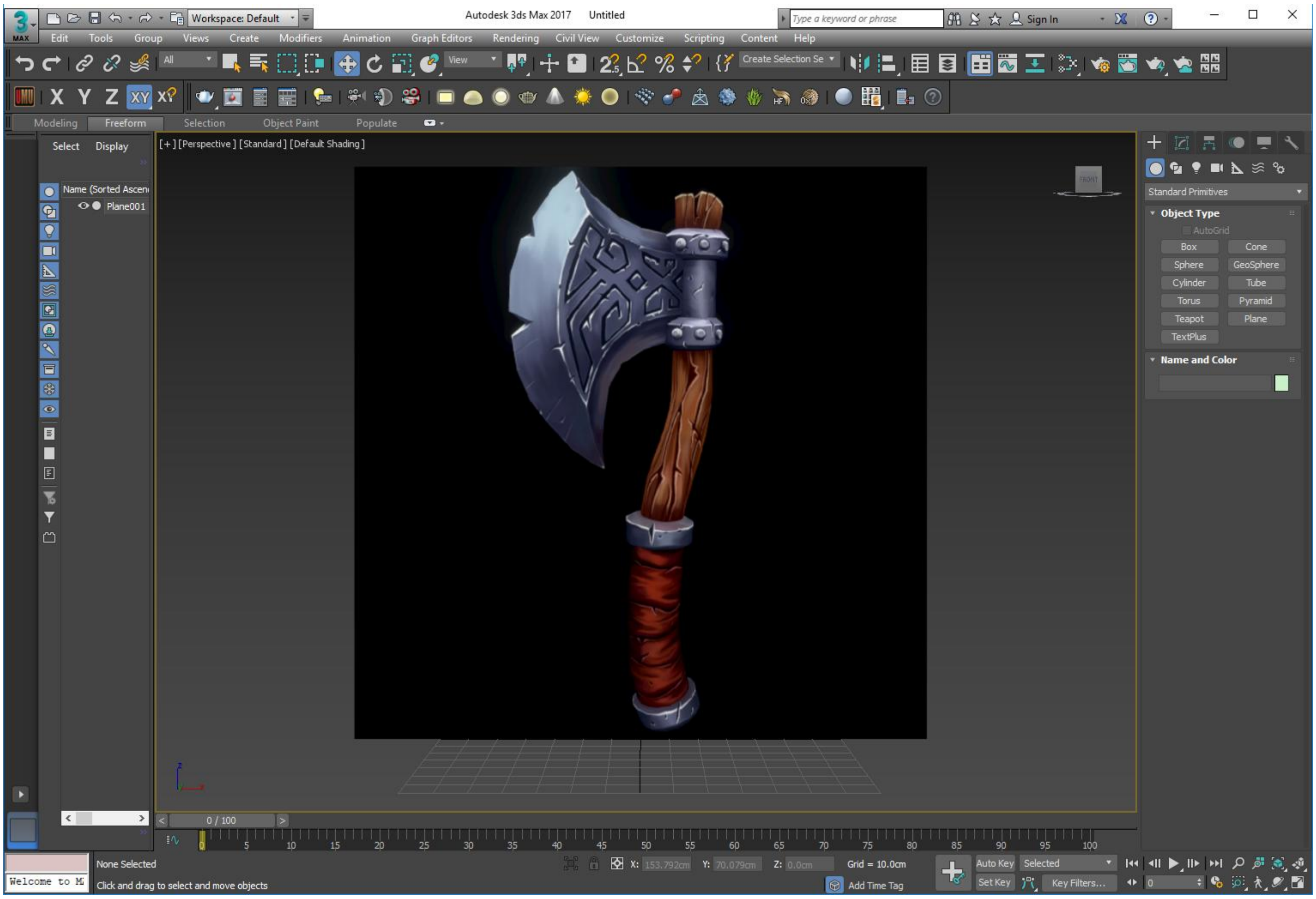
First, create a Plane, size around 200cm x 200cm



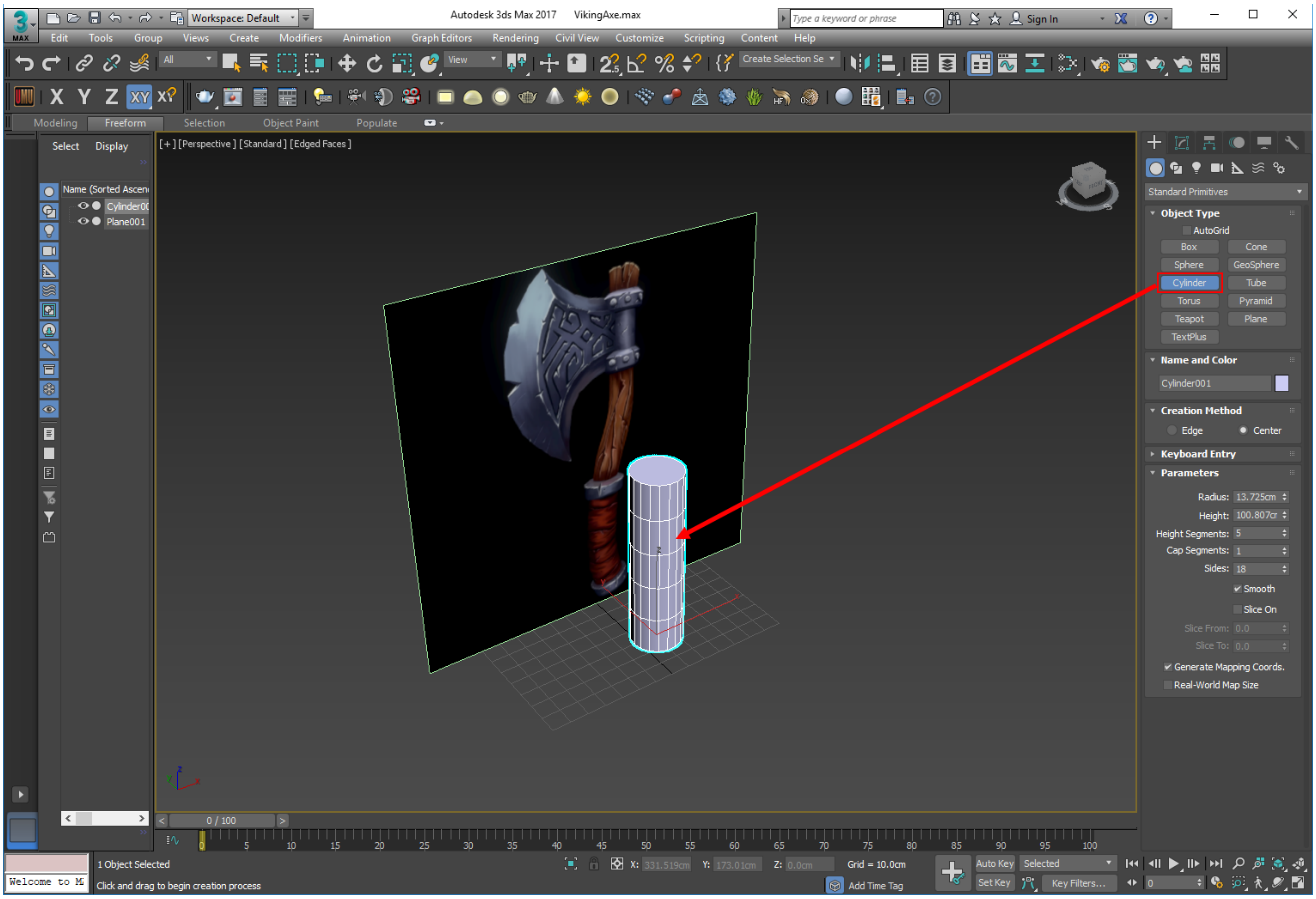
Import the picture to Plane



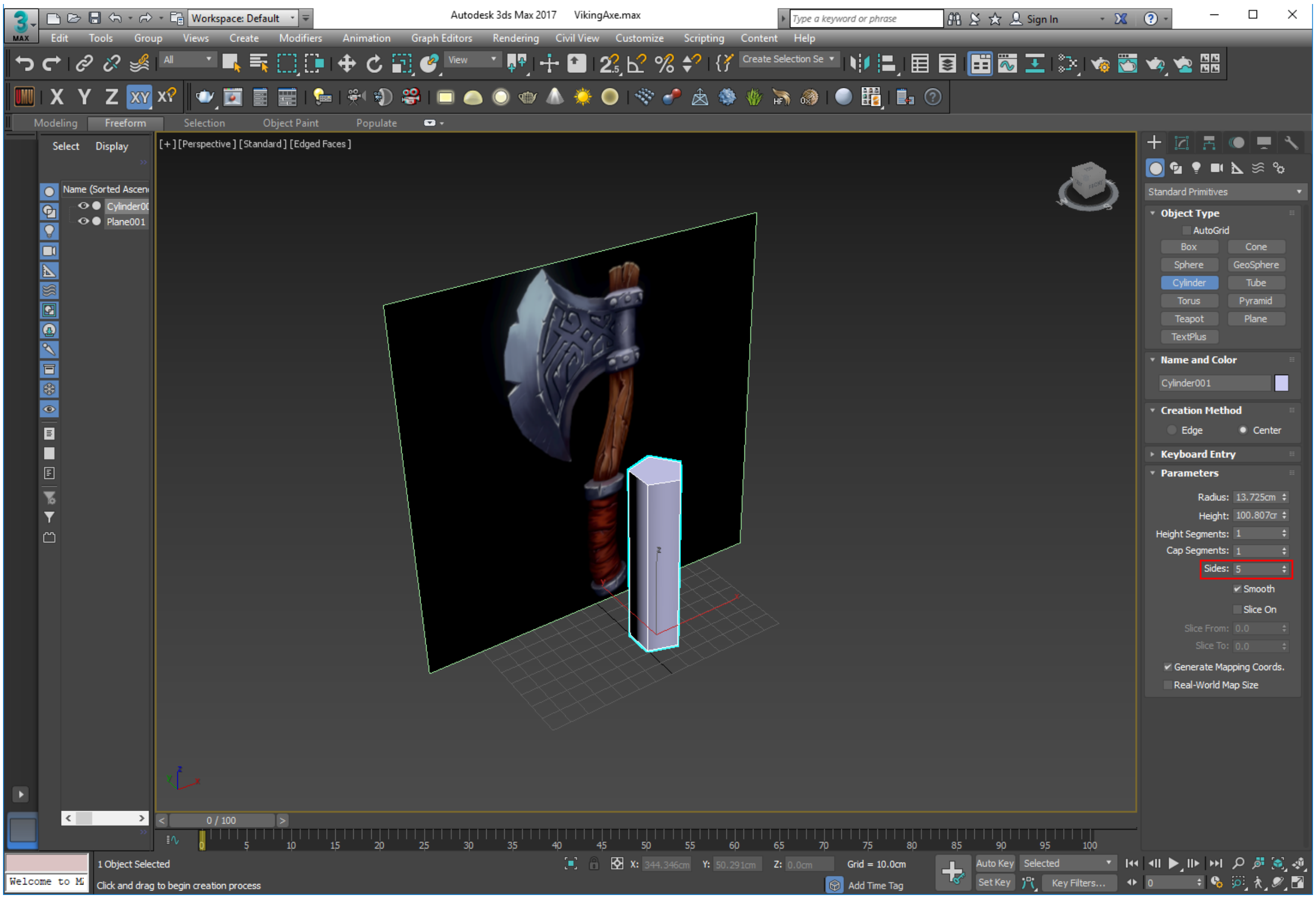
Here is after import picture into Plane



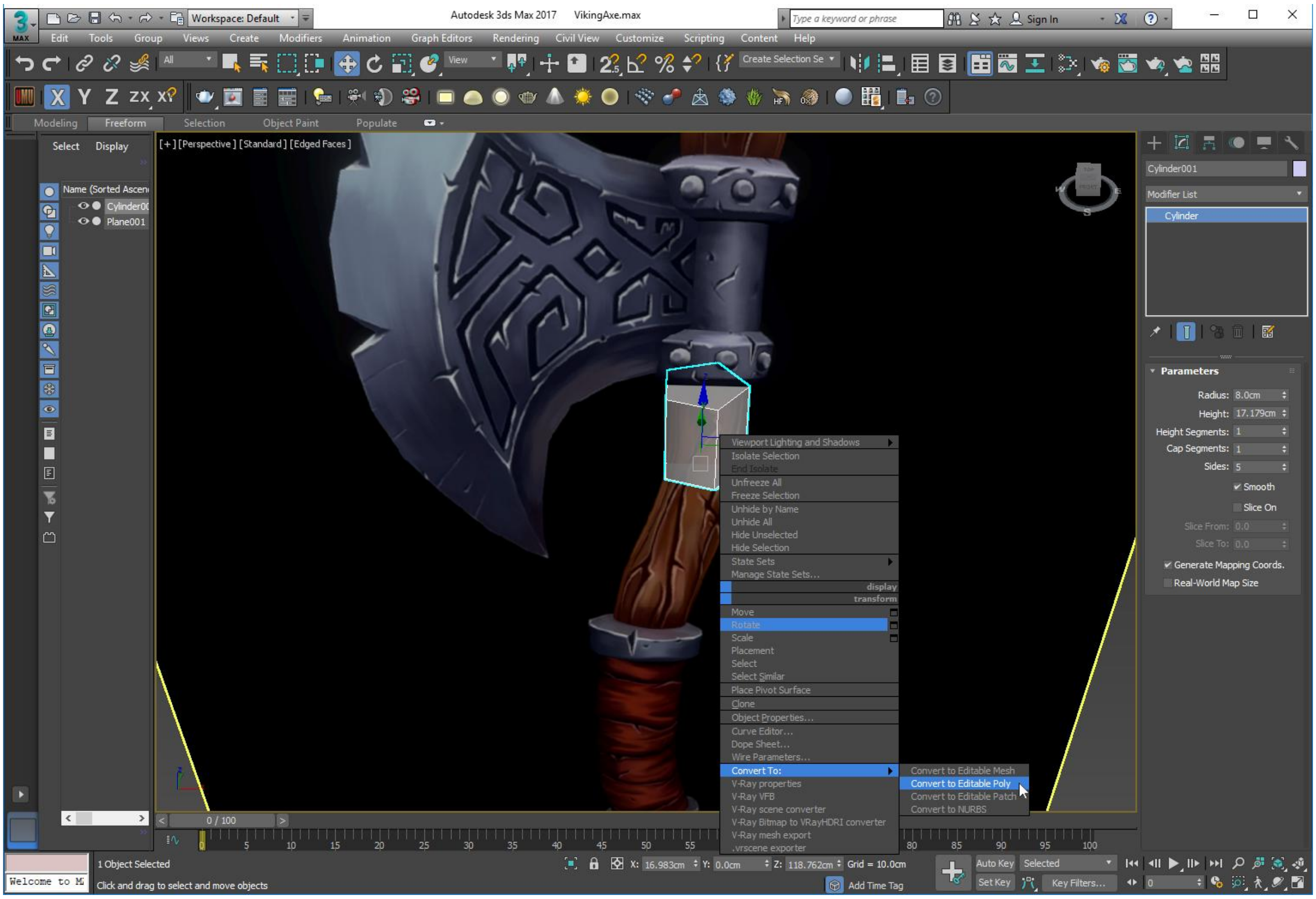
Create cylinder



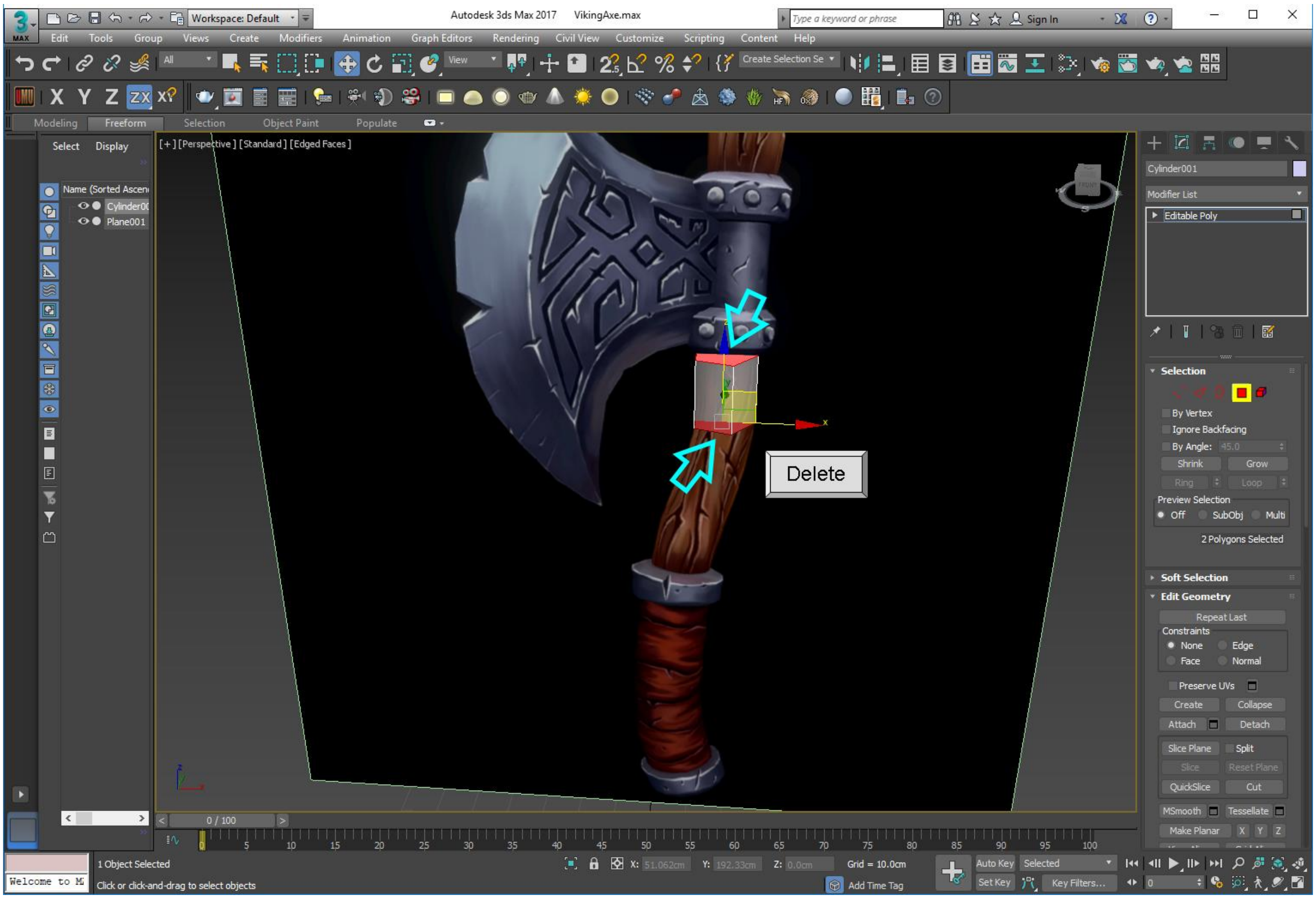
Change the size to 5, because we need create lowpoly axe



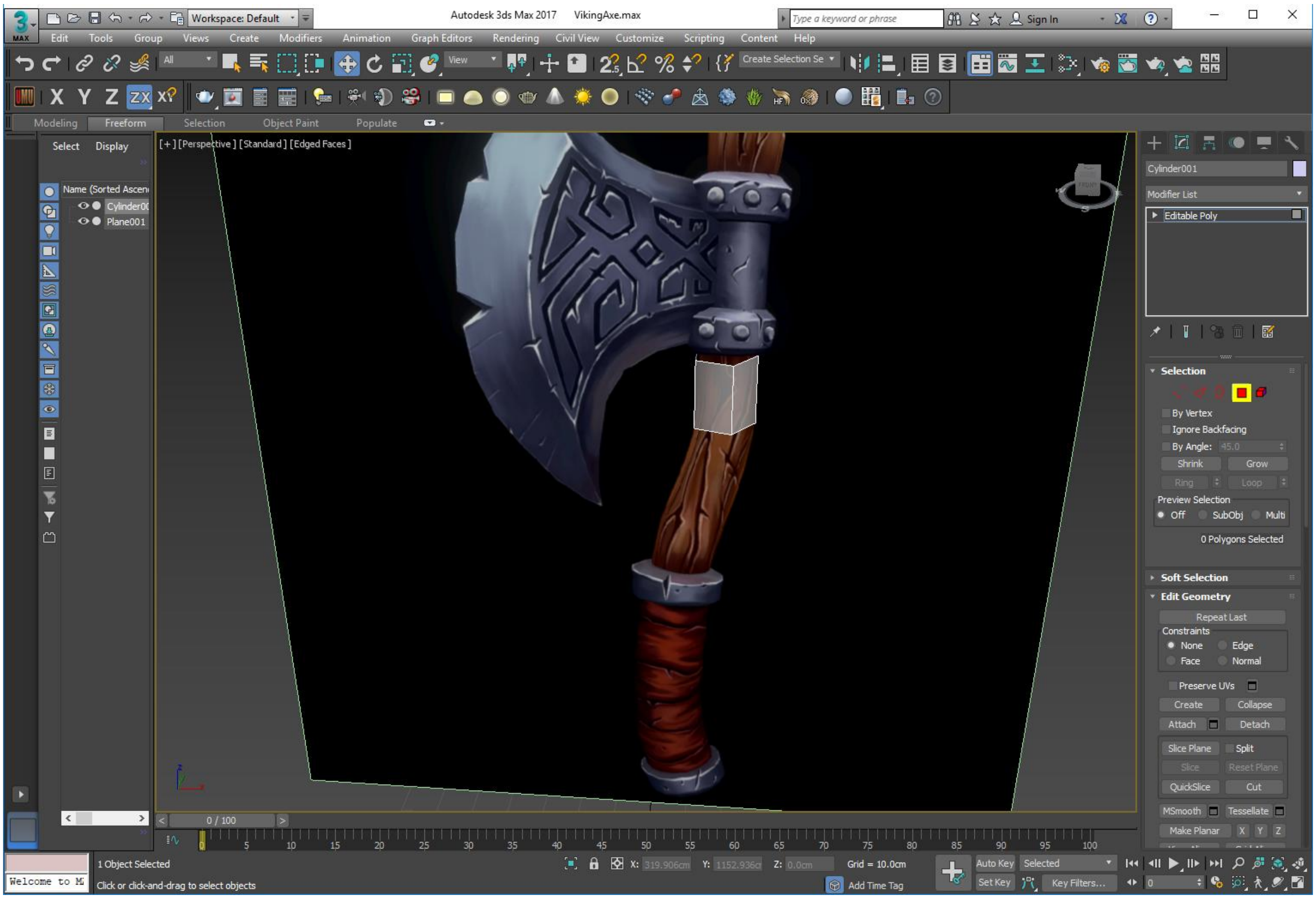
Move the cylinder to the center, and right click convert to editable poly



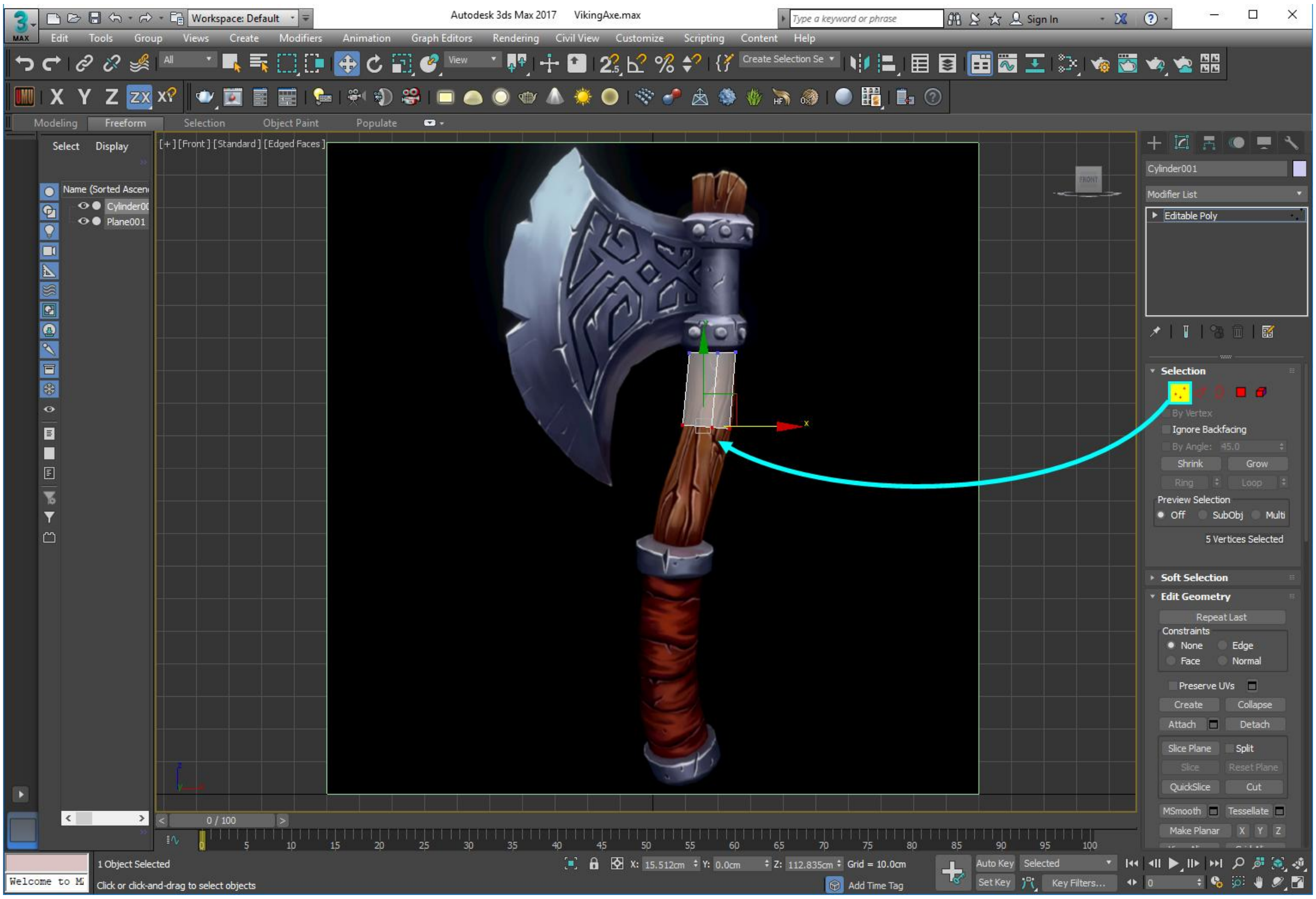
Select top and bottom polygon, and delete it



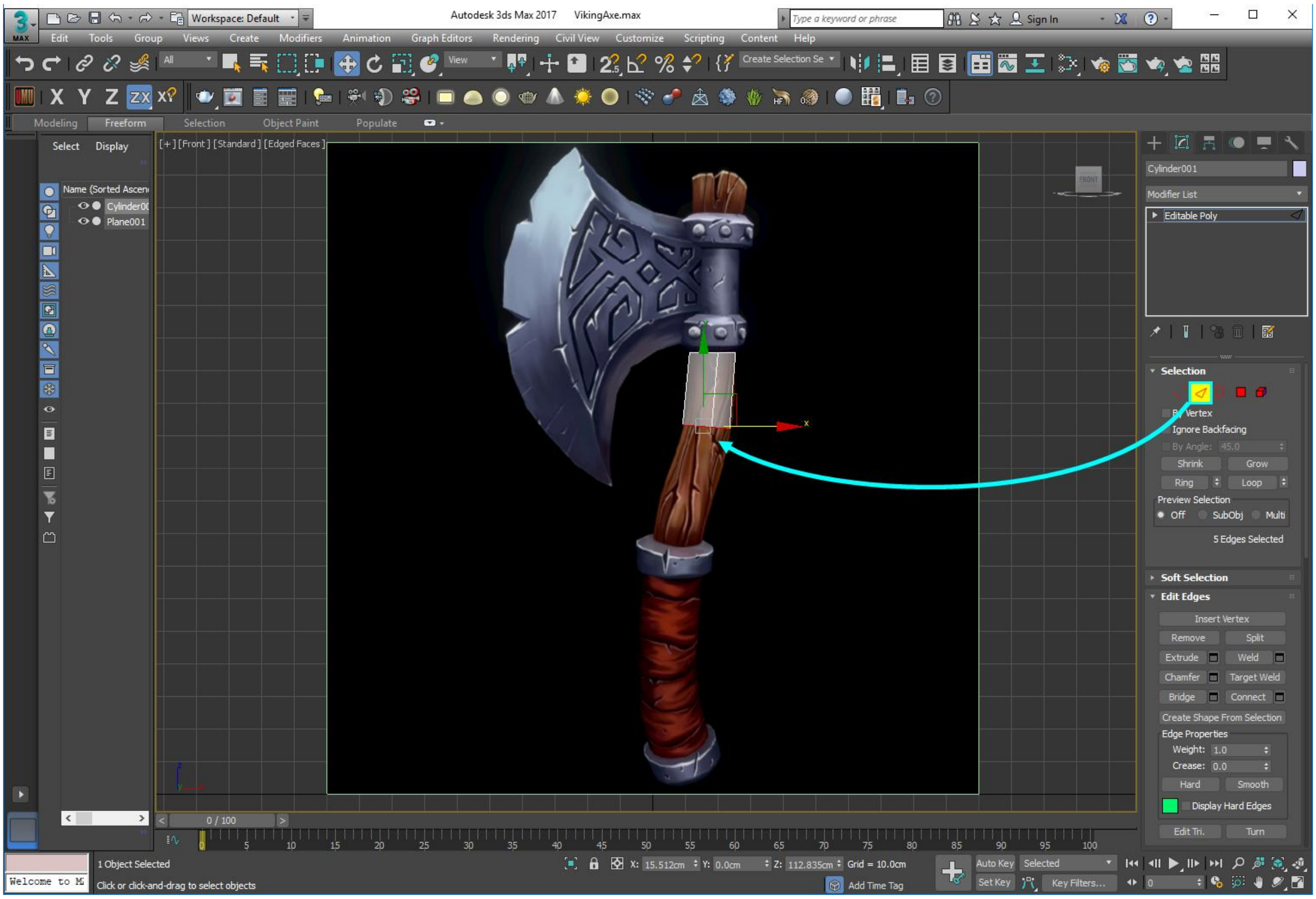
After delete top and bottom



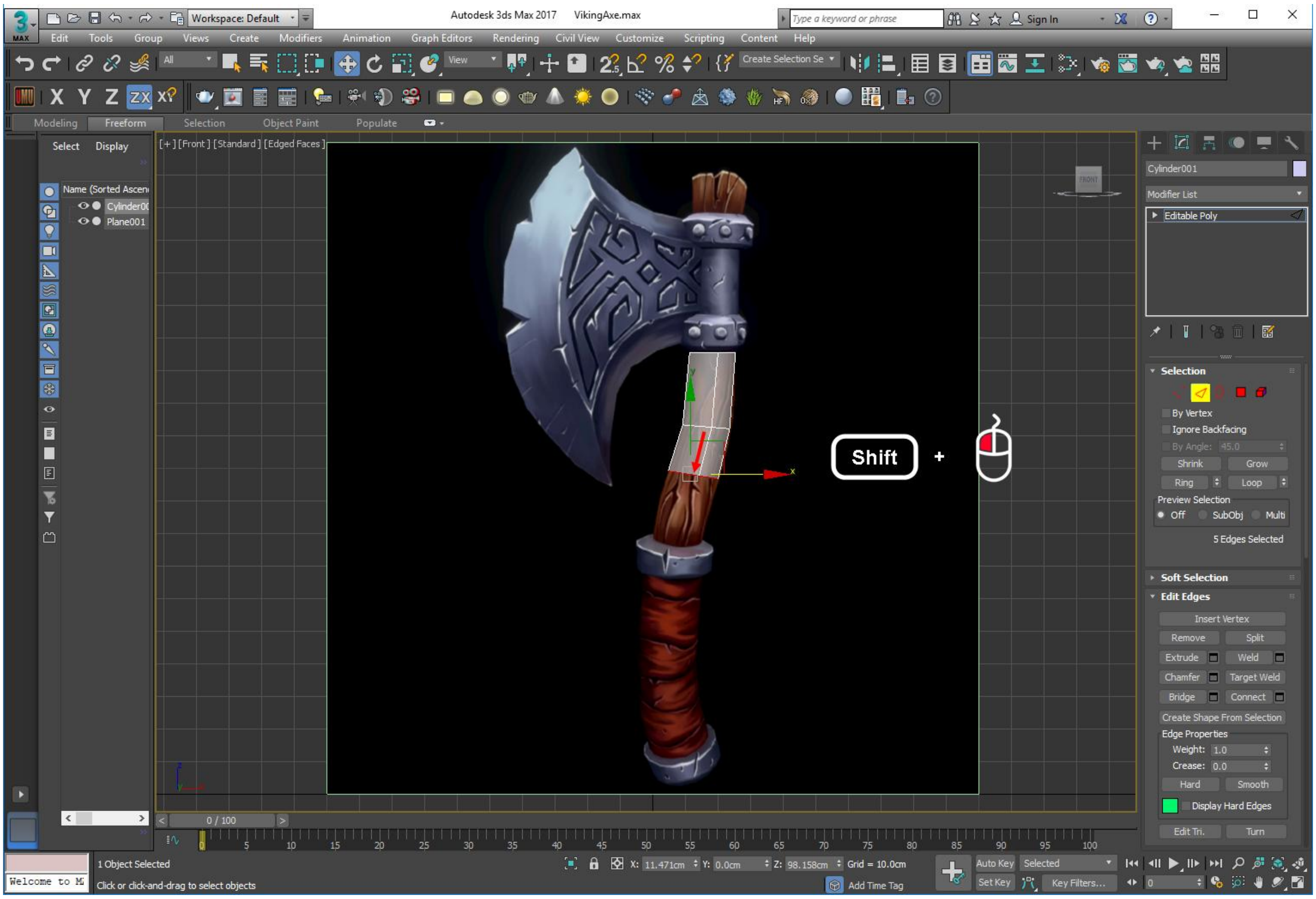
Select vertex and adjust

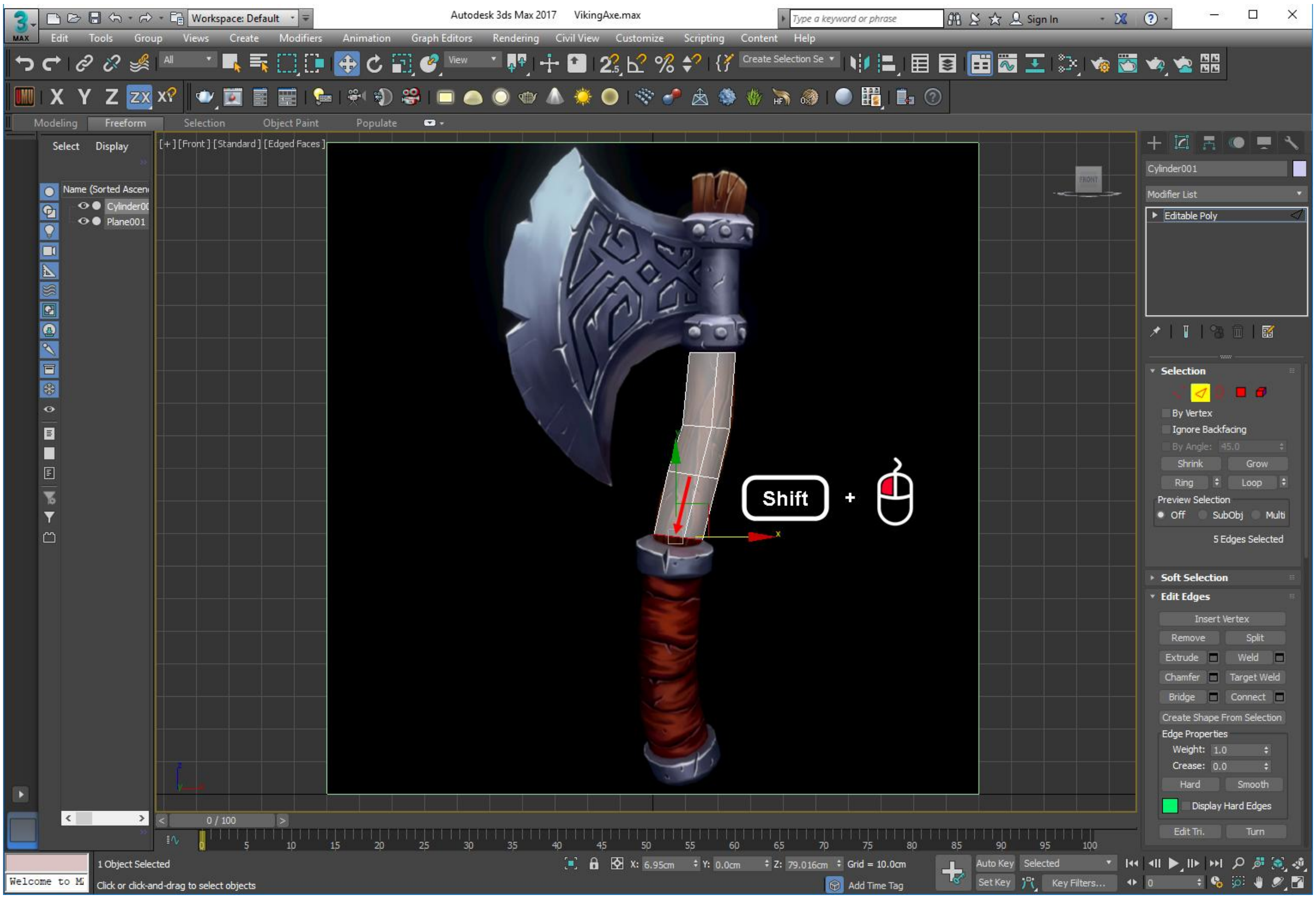


Select edges

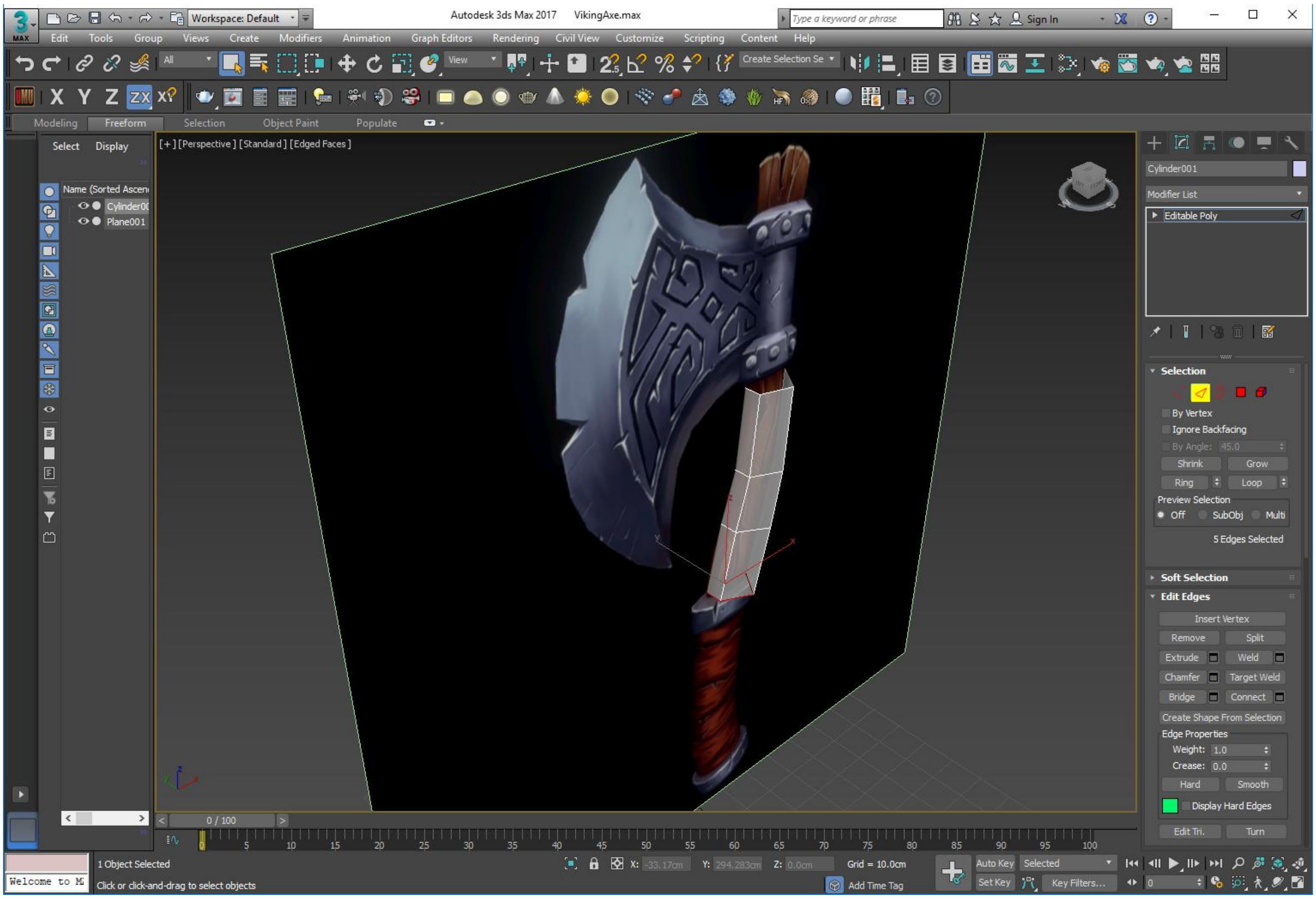


Press shift and drag the edges

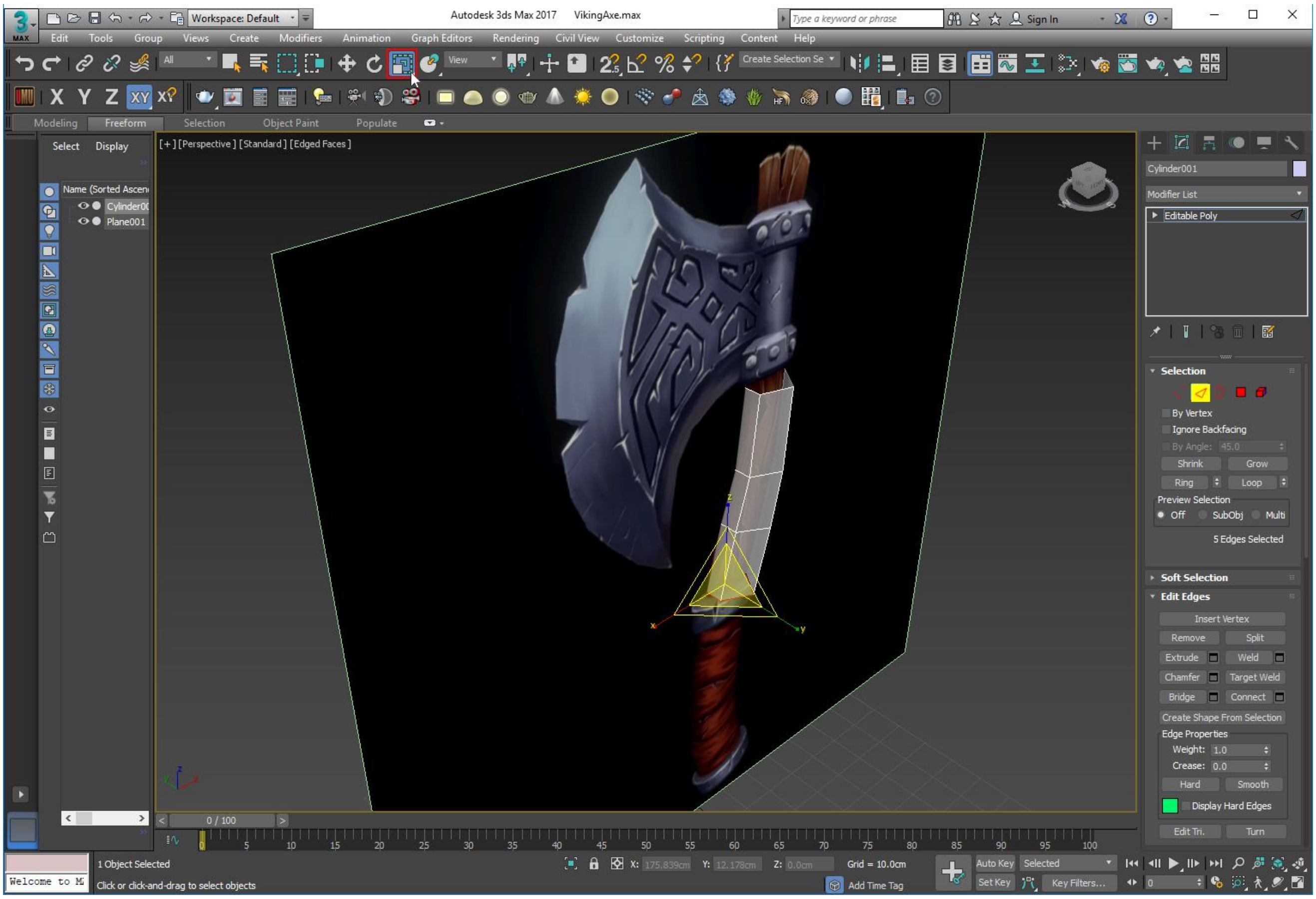




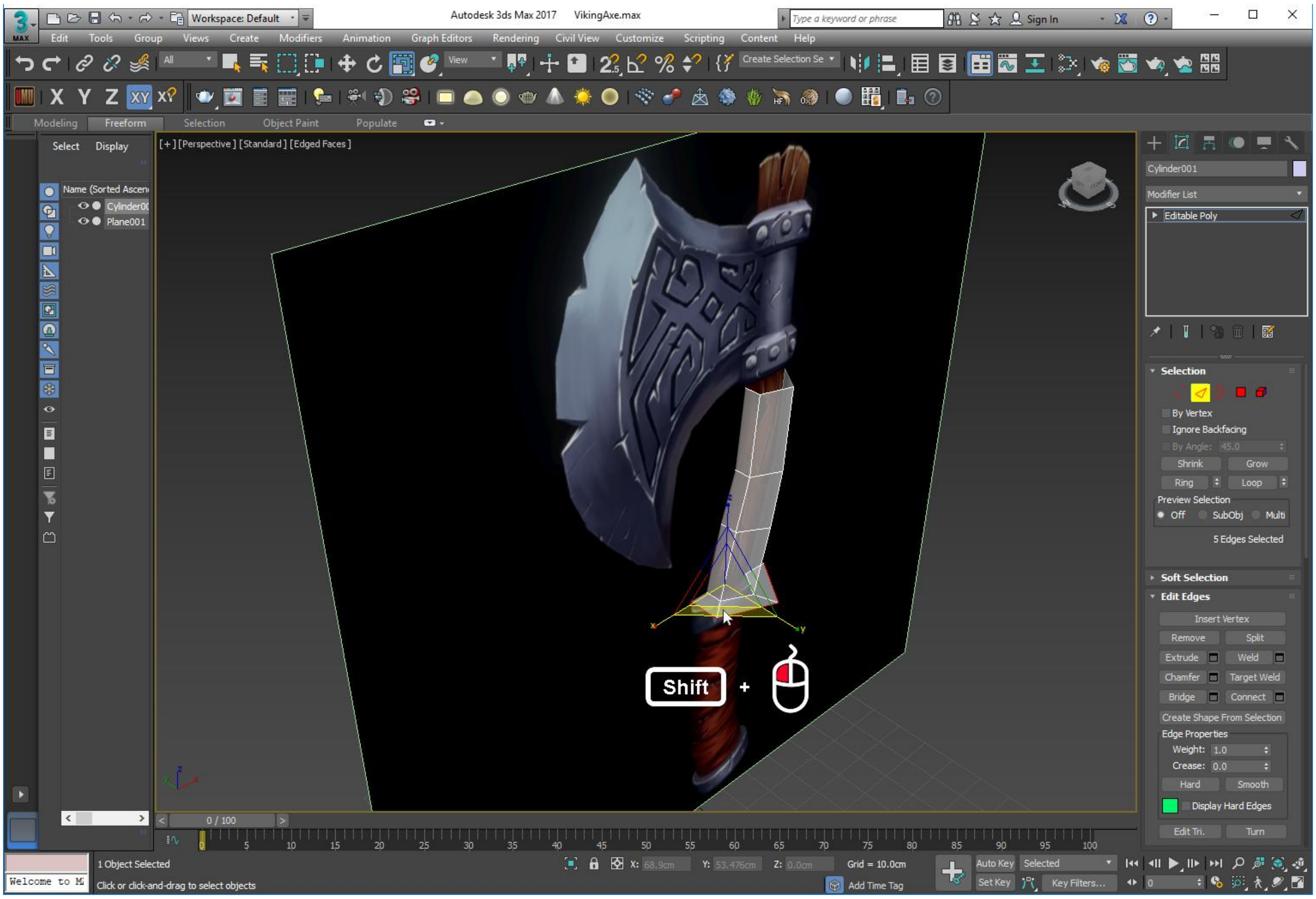
Switch to perspective view



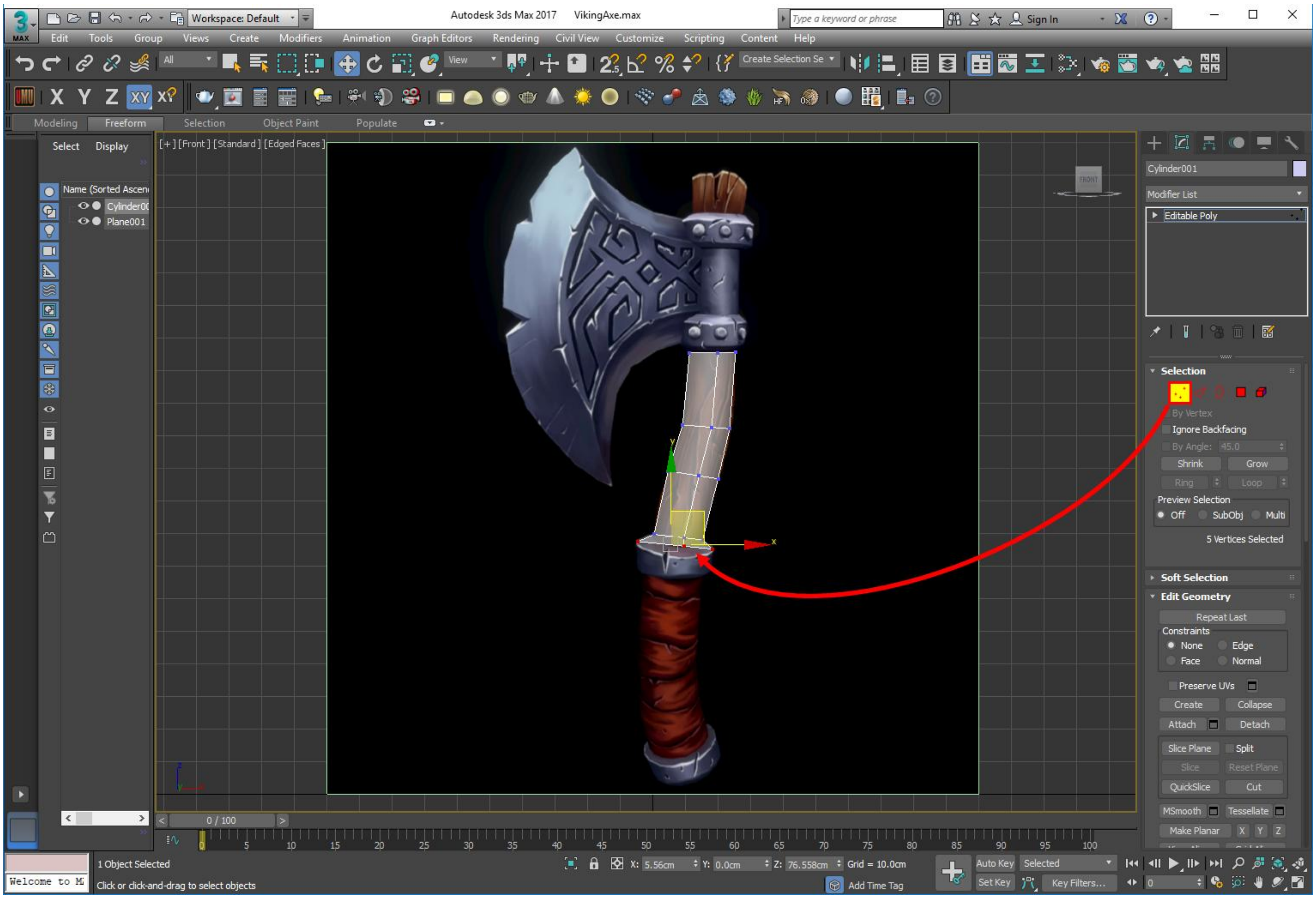
Click “Select and Uniform Scale”



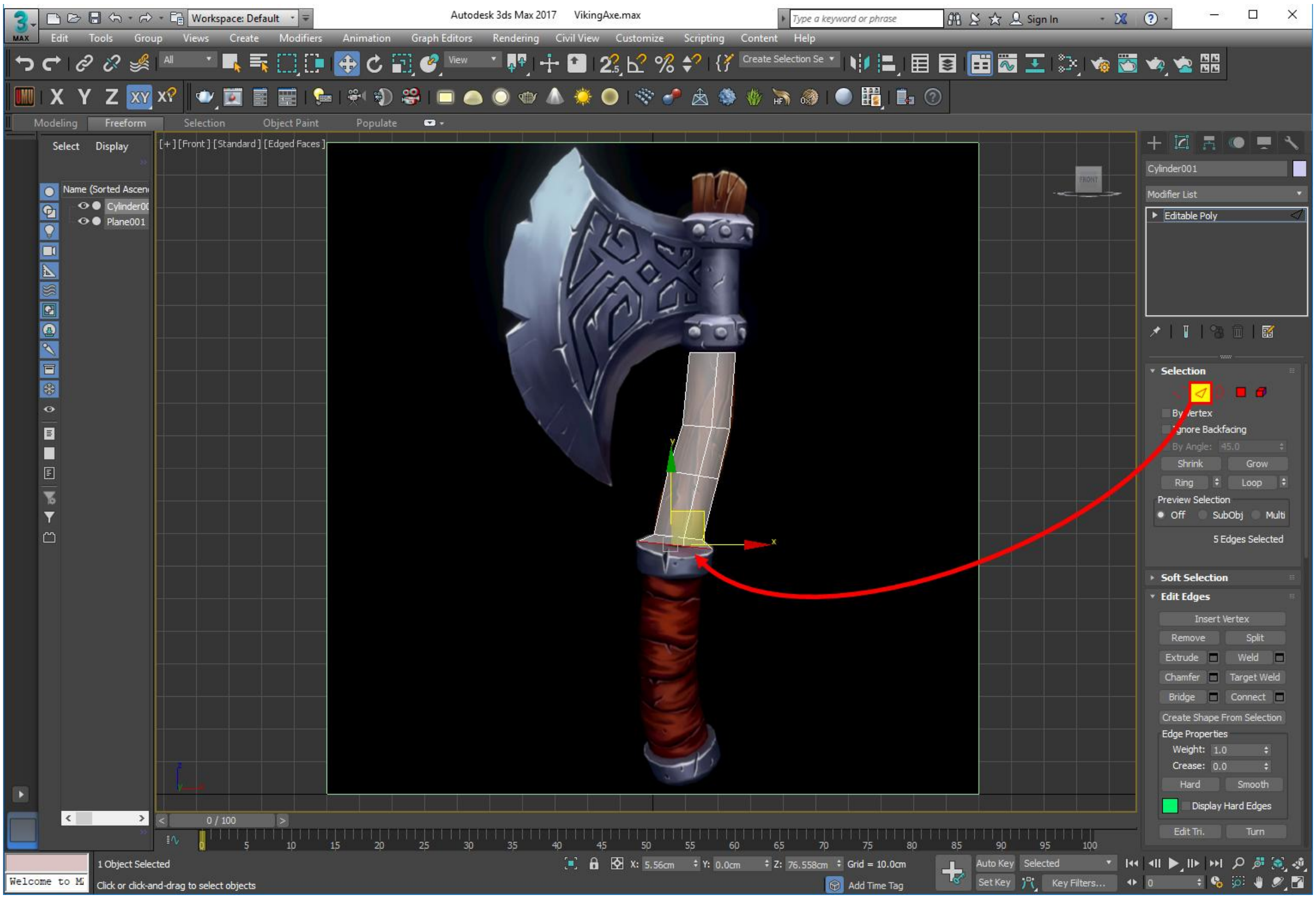
Press Shift and drag it



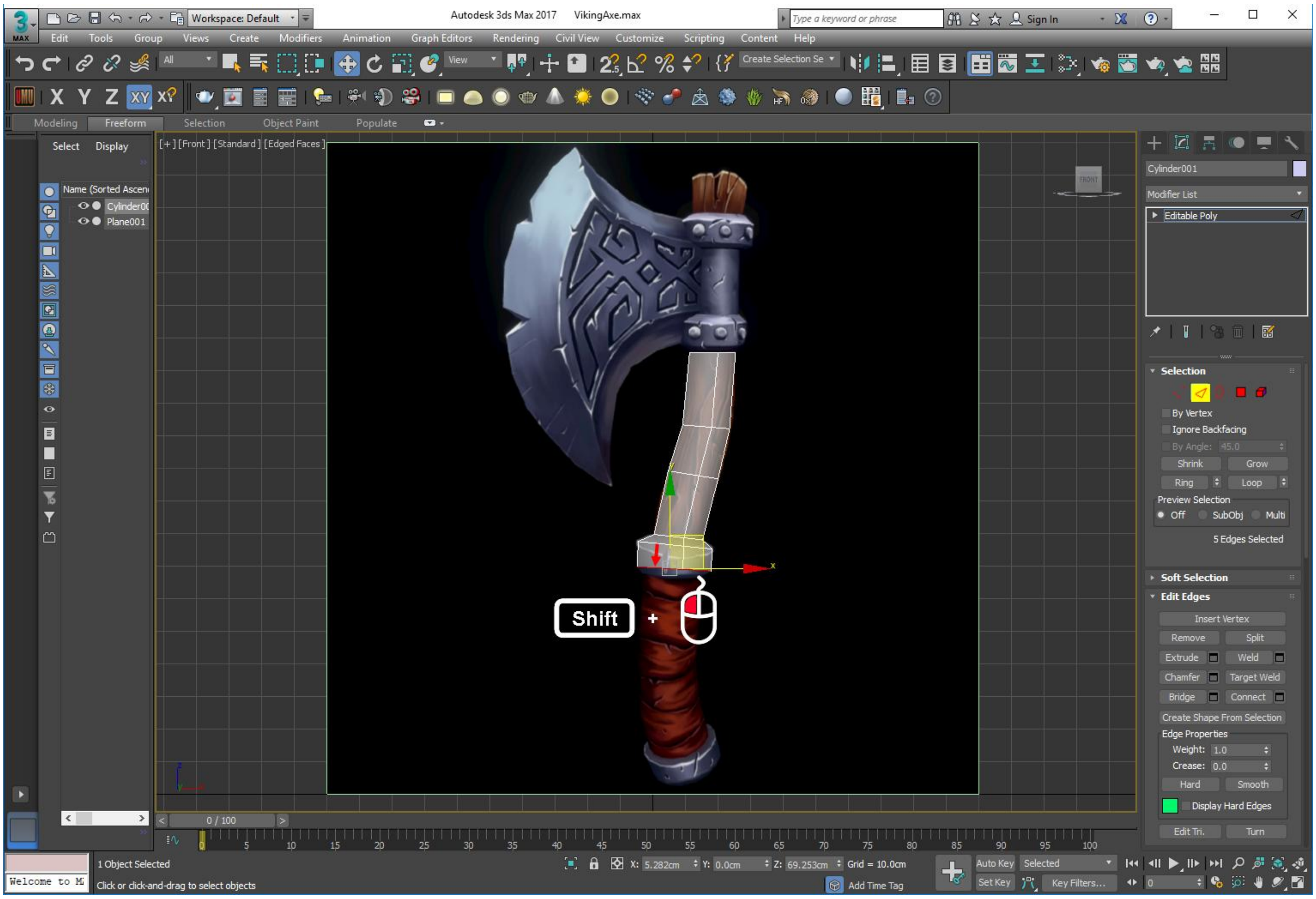
Click vertex and adjust



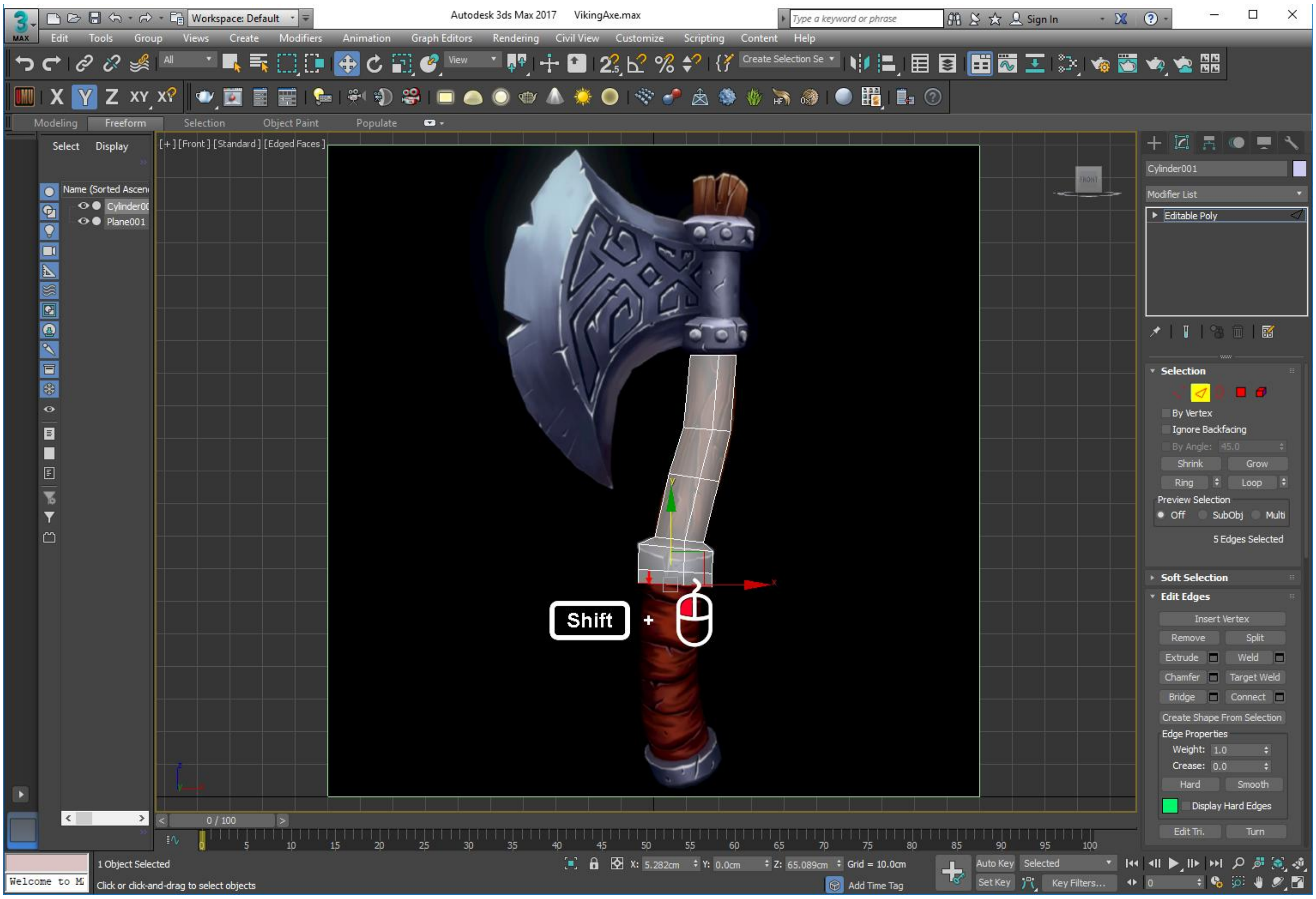
Select edges



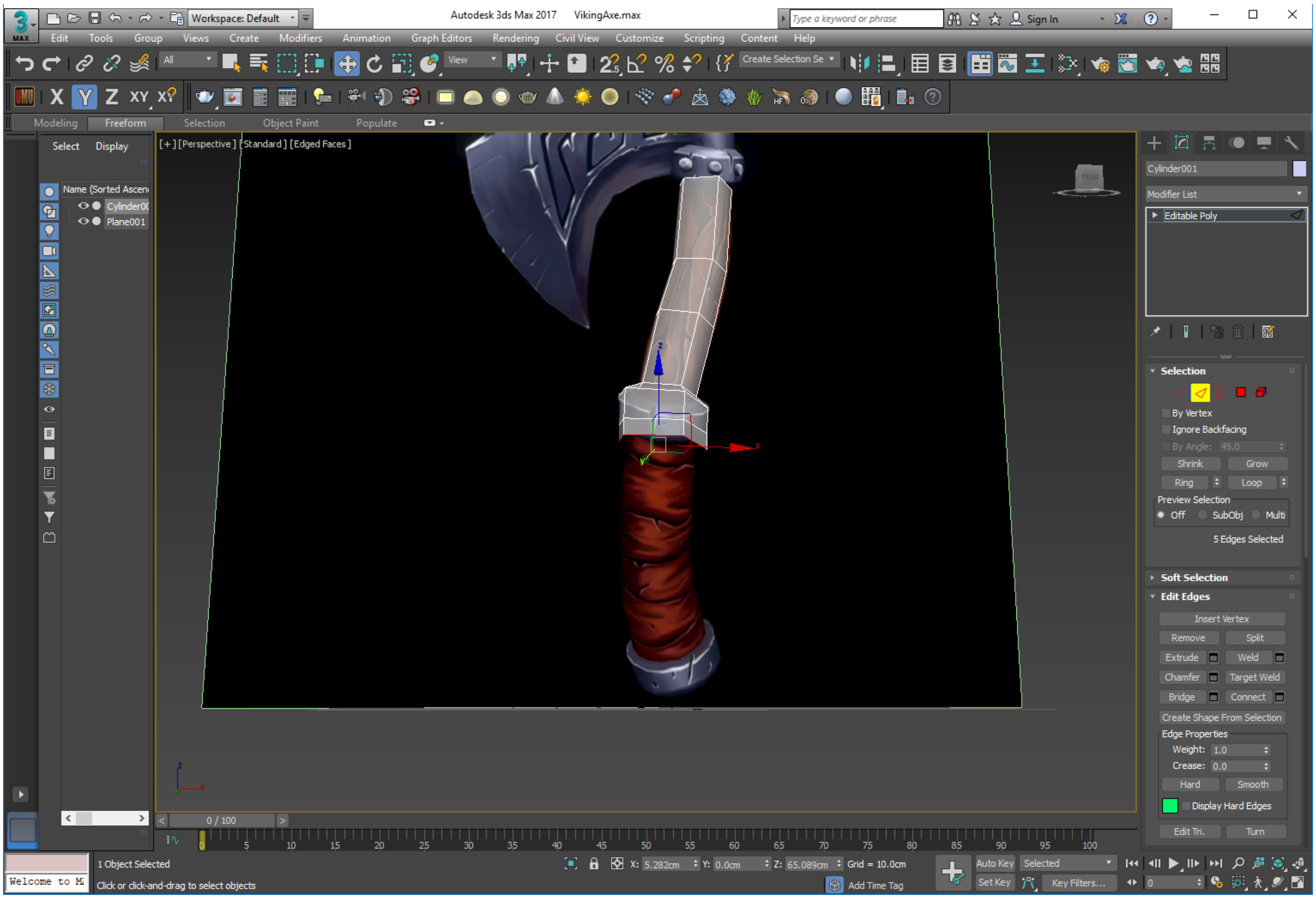
Press shift and drag down



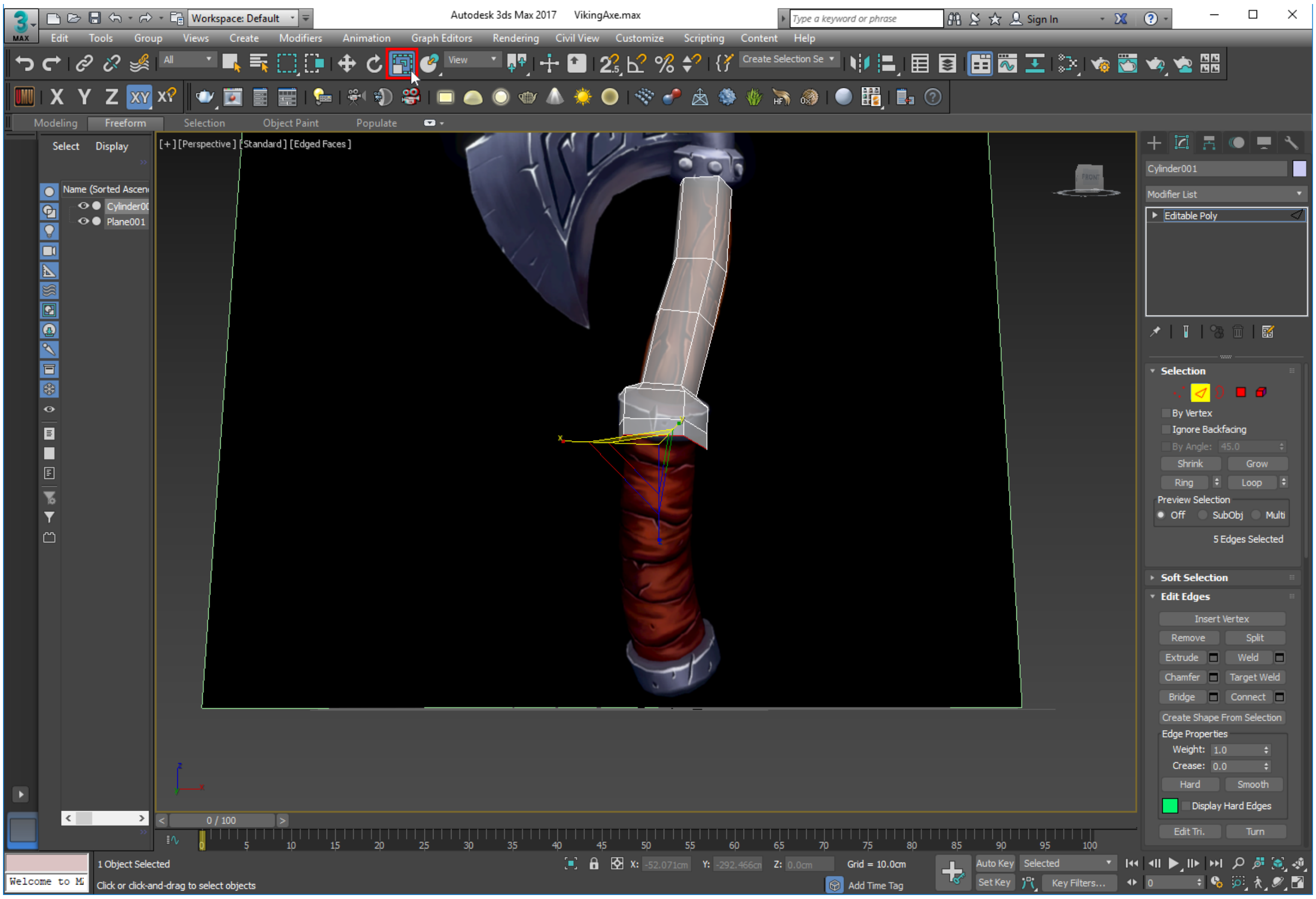
Repeat the same step



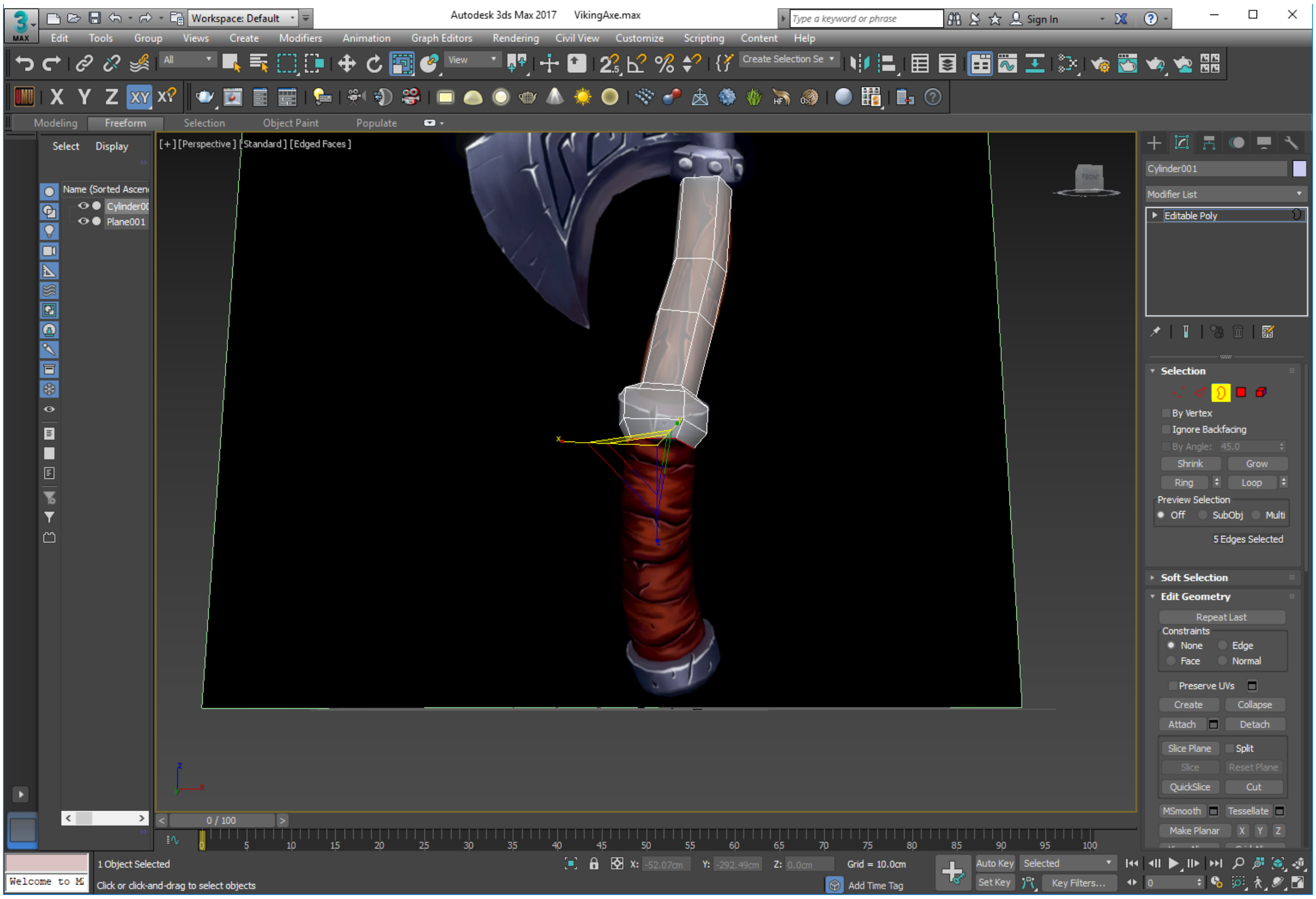
Swith to perspective view



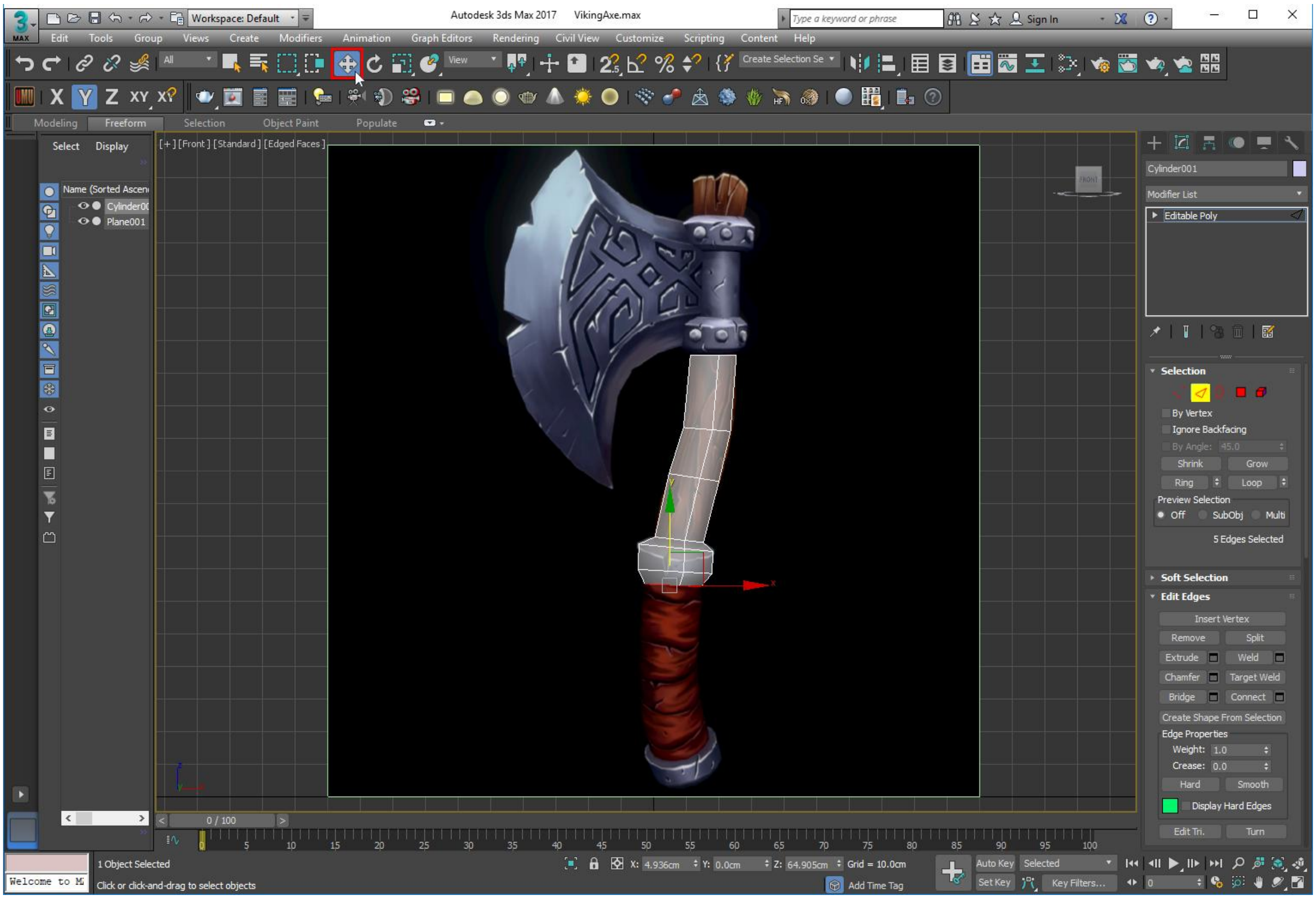
Click “Select and Uniform Scale”



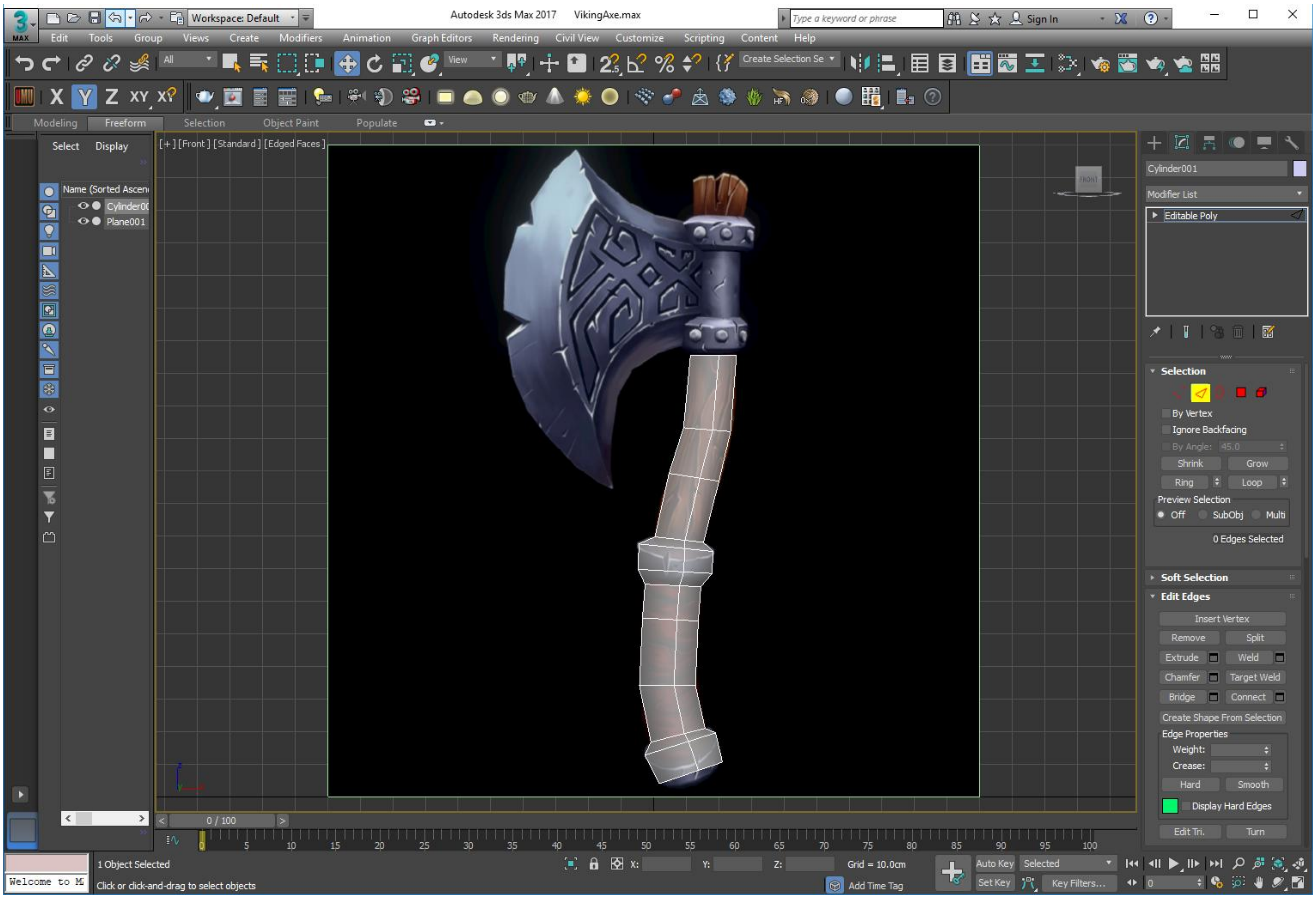
Slowly adjust to exactly size



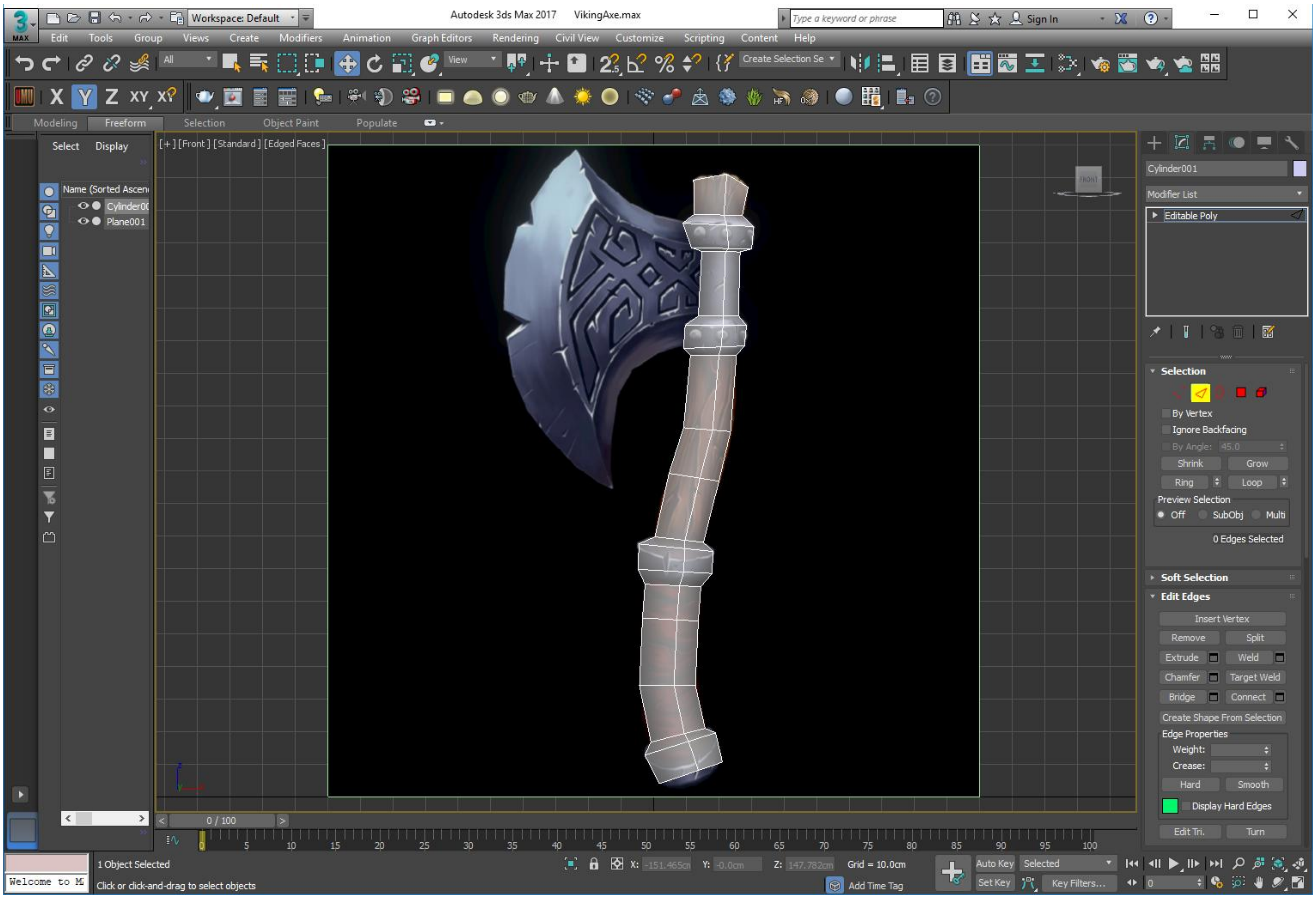
Switch to orthographic view



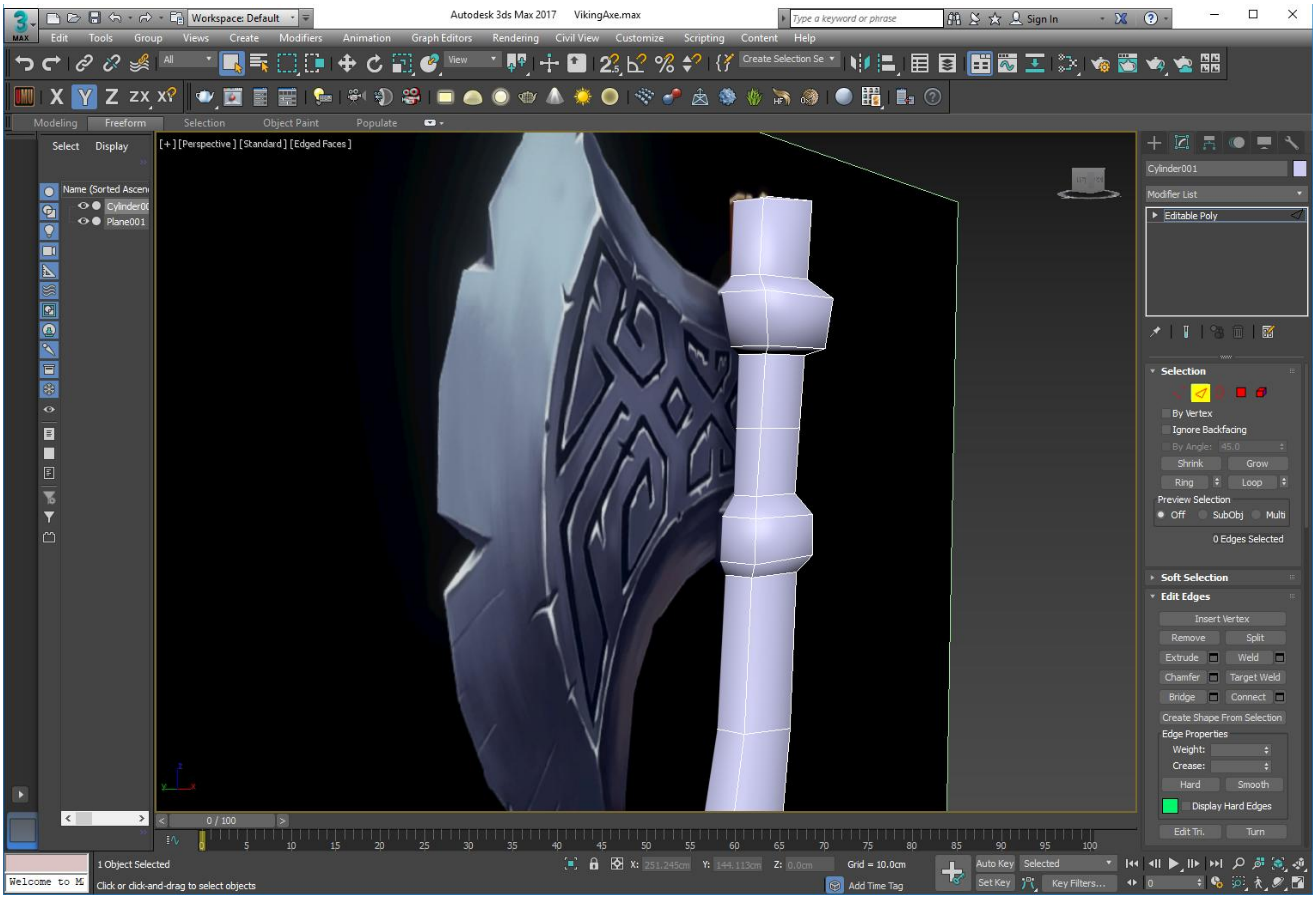
Repeat the same step to complete the axe handle



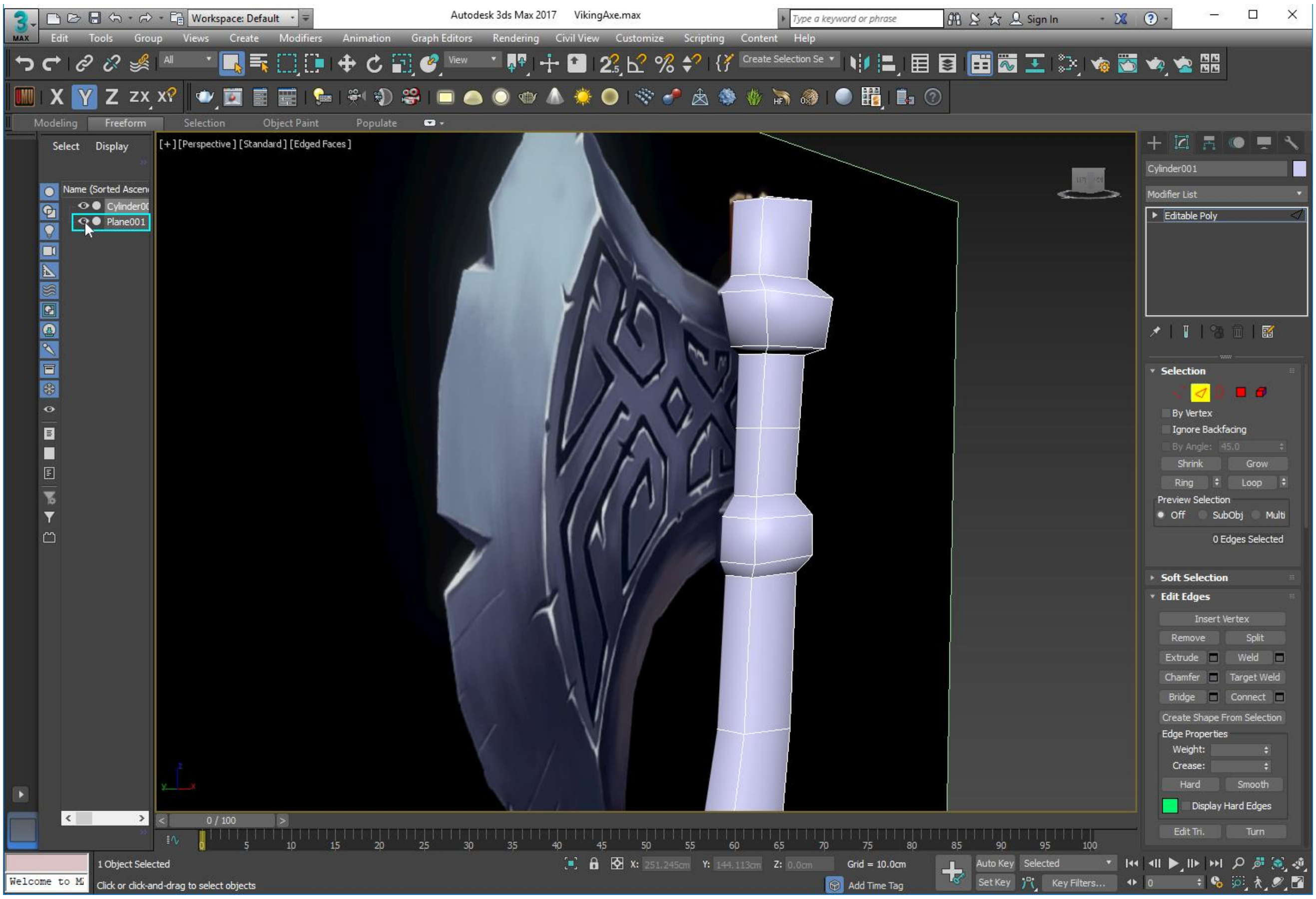
Repeat same step when complete the top



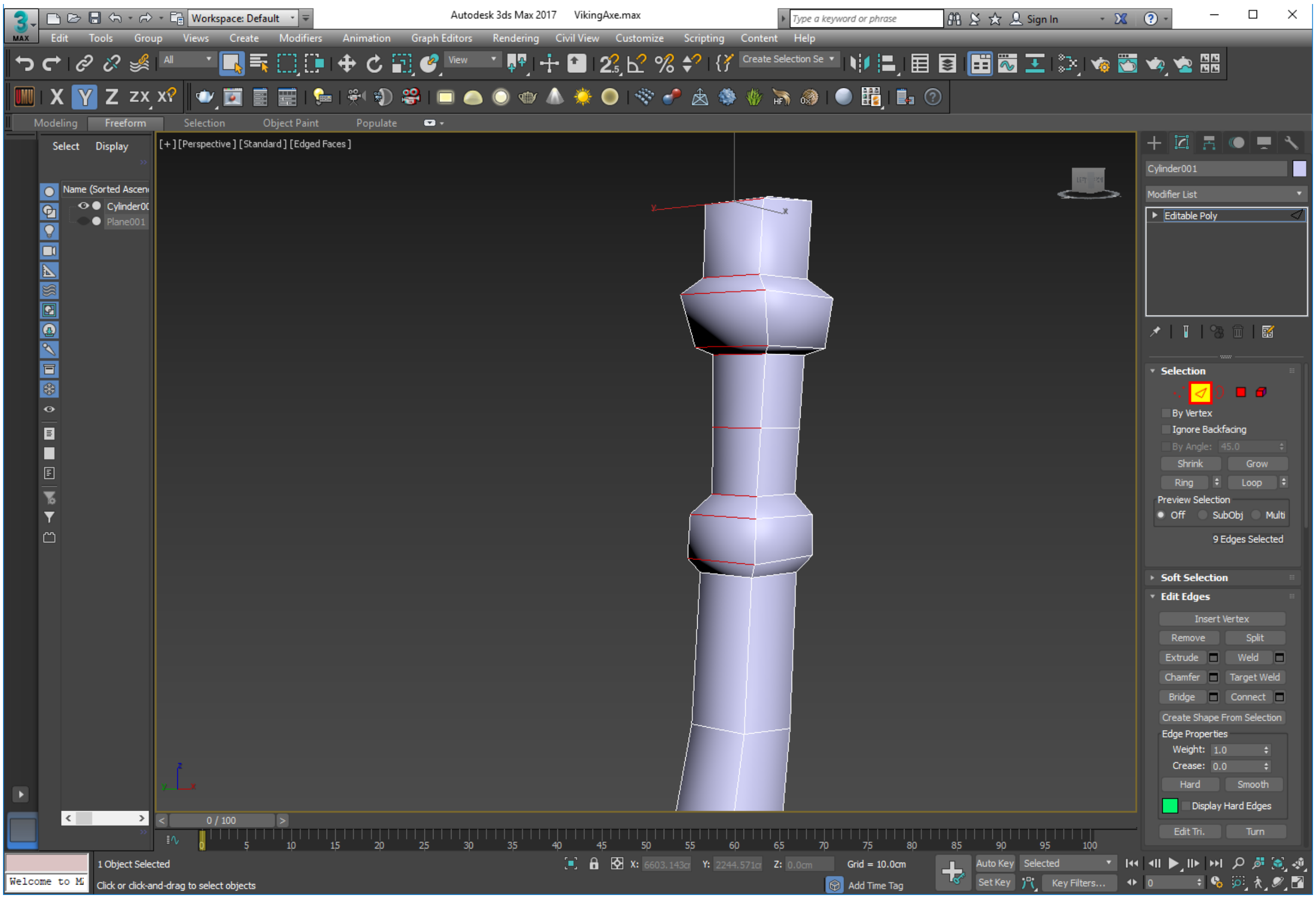
After complete, we going build the axe blade



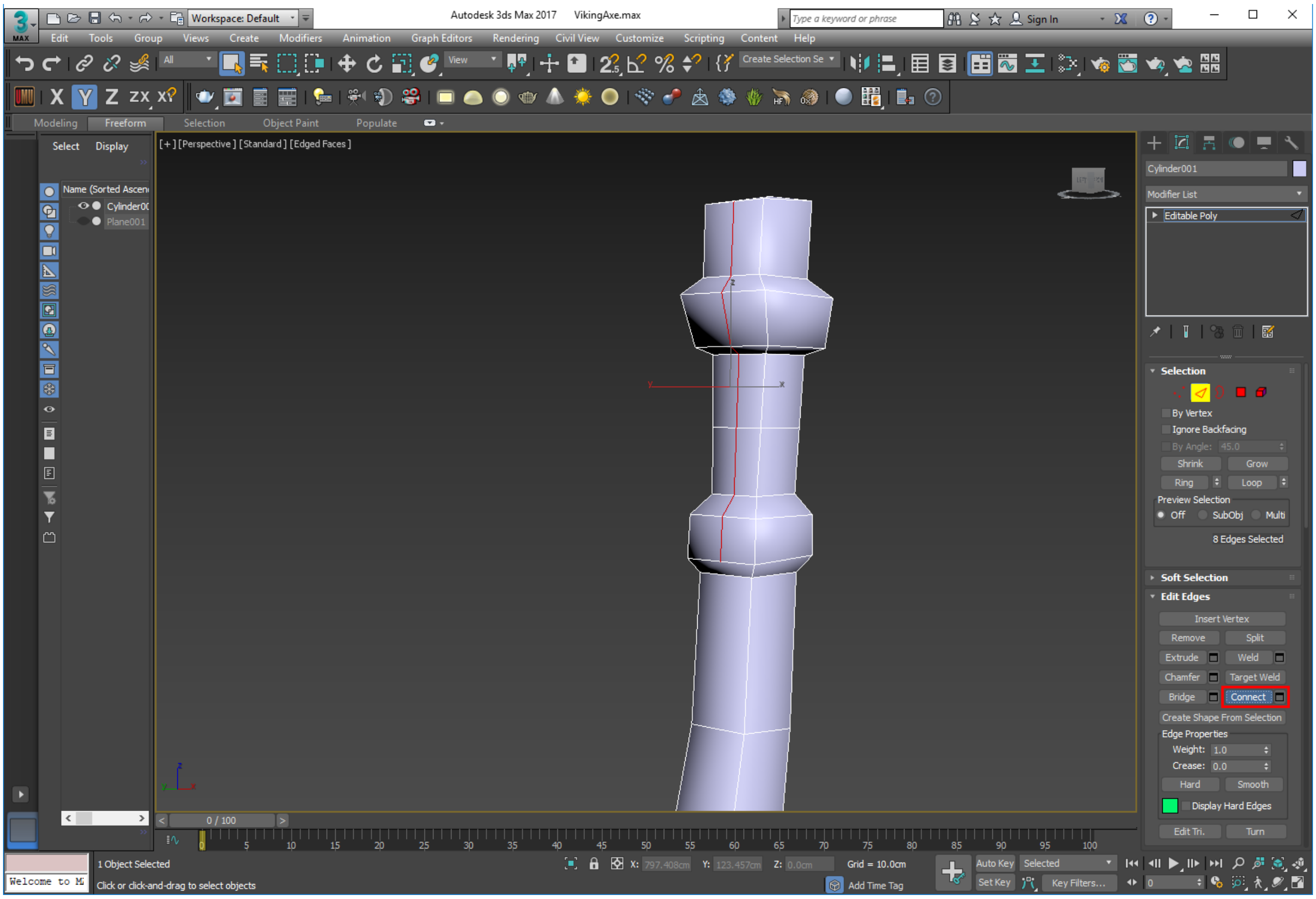
Click the “eye” logo to hide plane



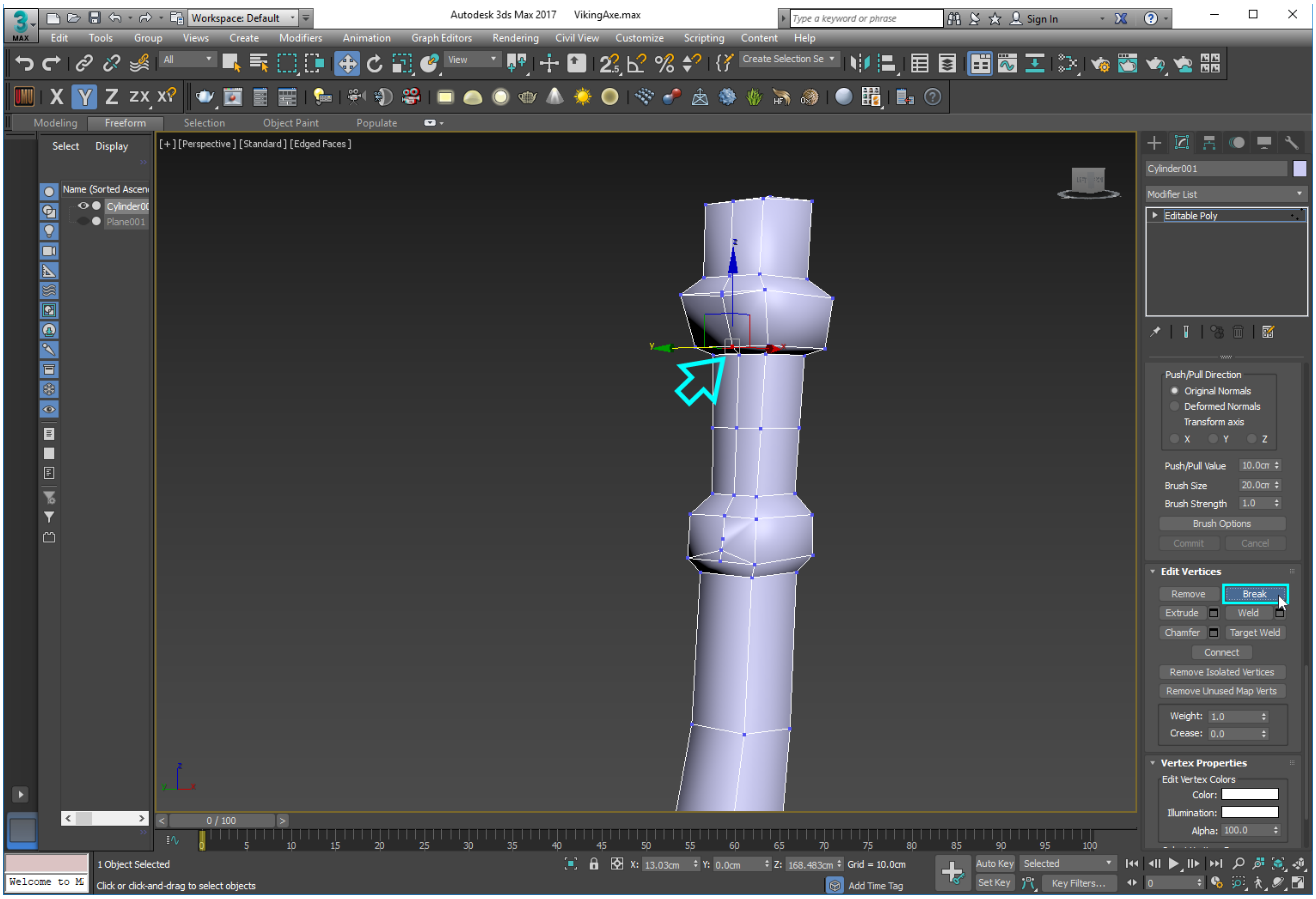
After hide plane, select edges



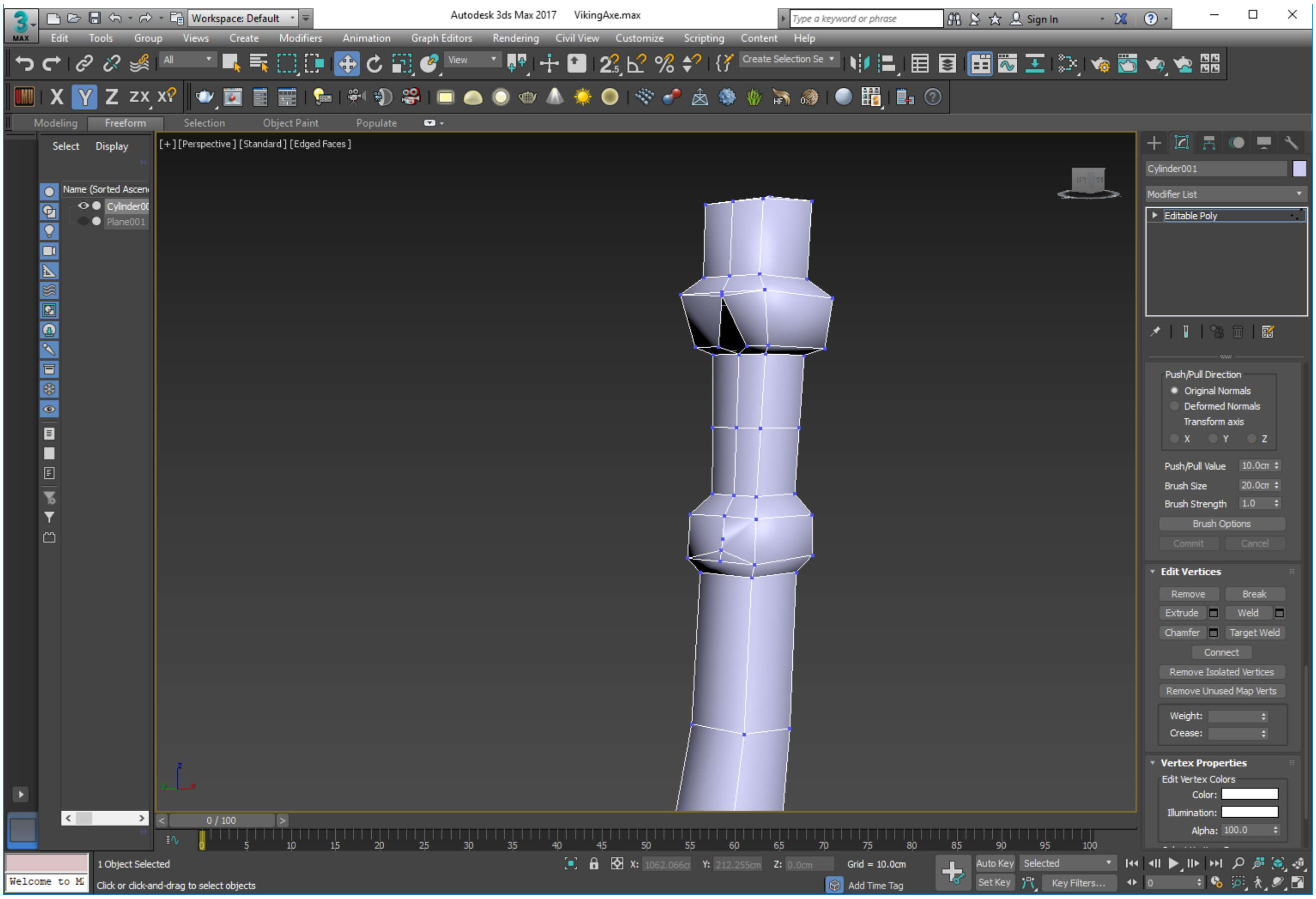
Click “Connect” and create a line on middle



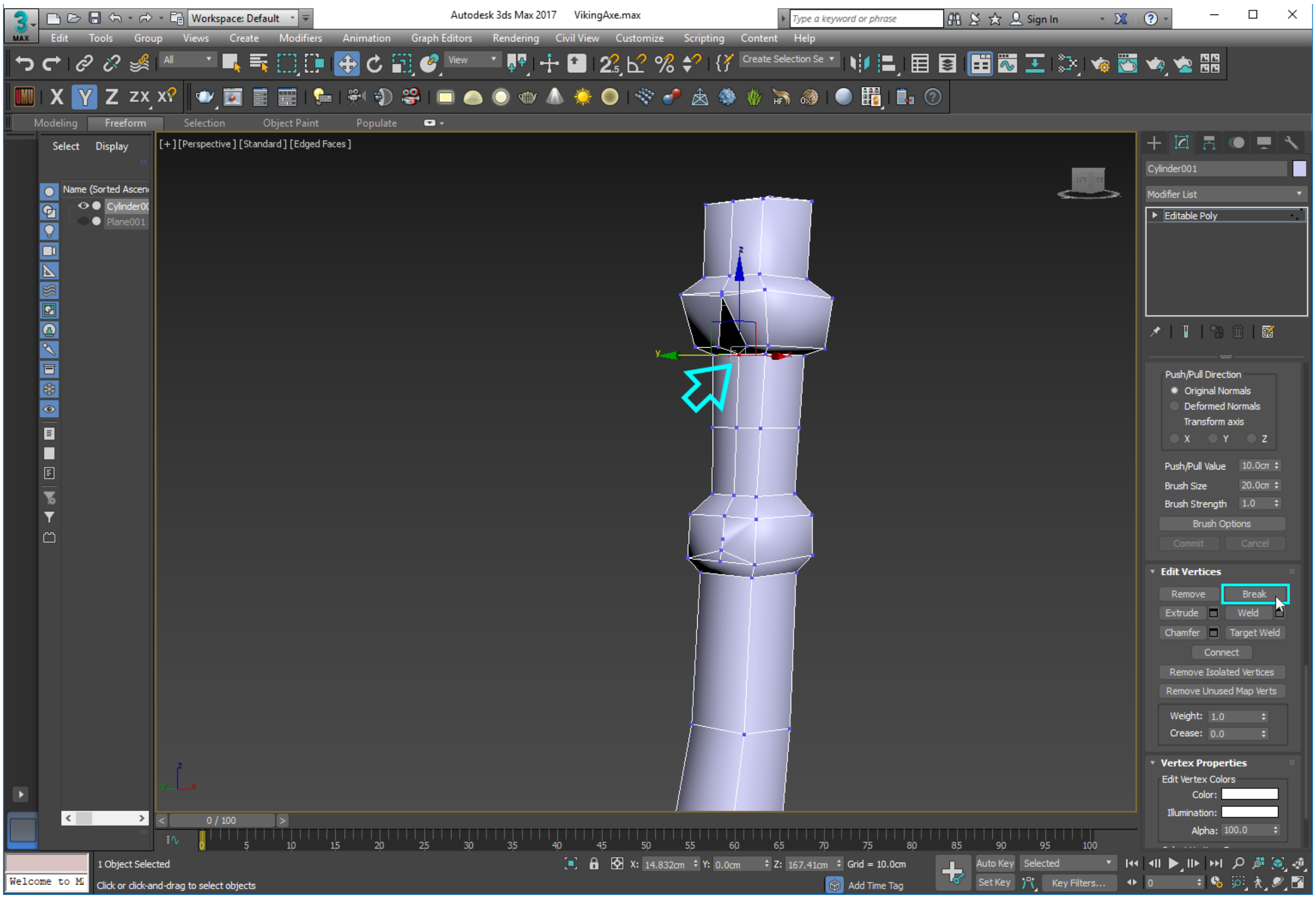
Select vertex and click “break”



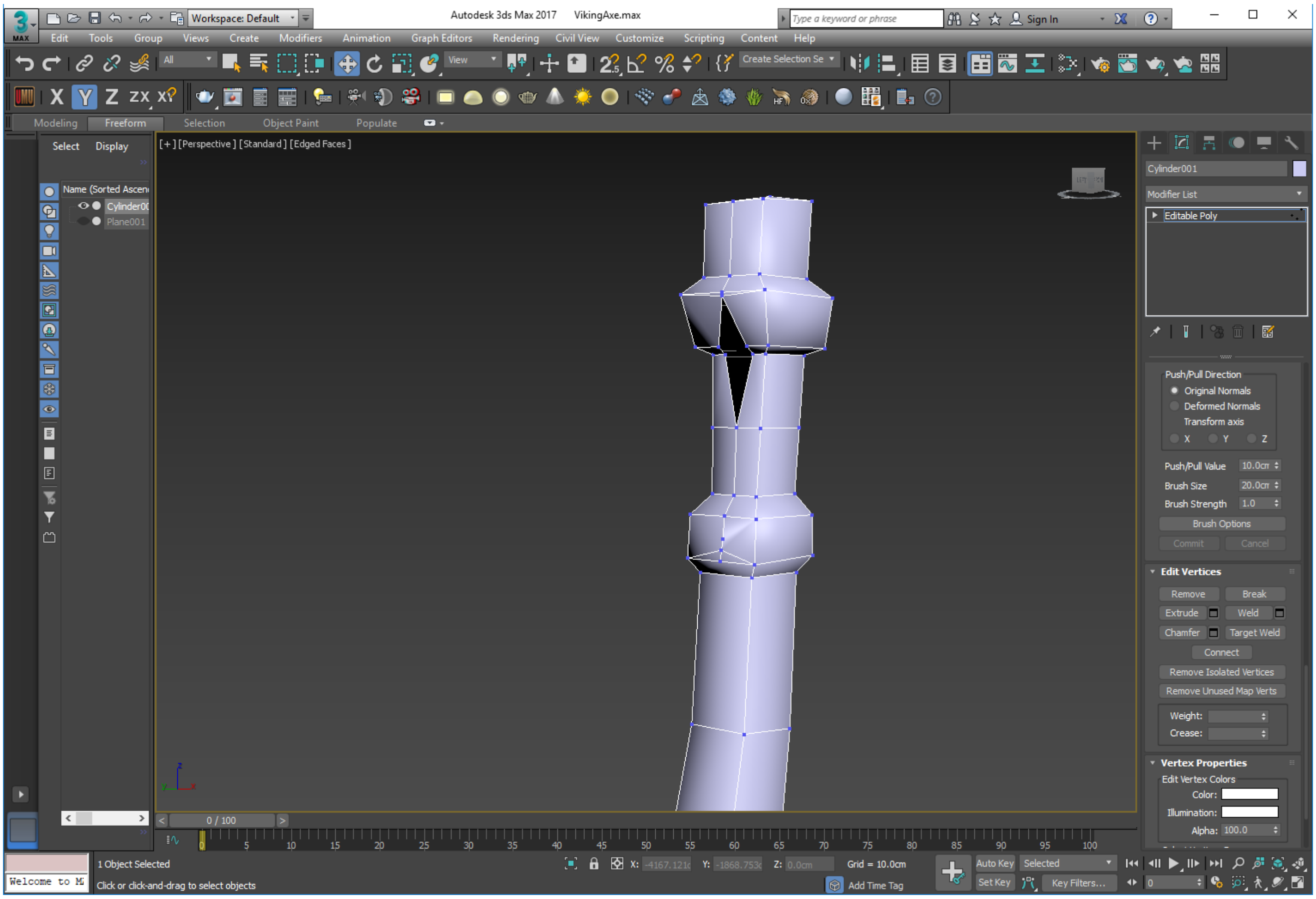
Adjust the vertex, and make a hole



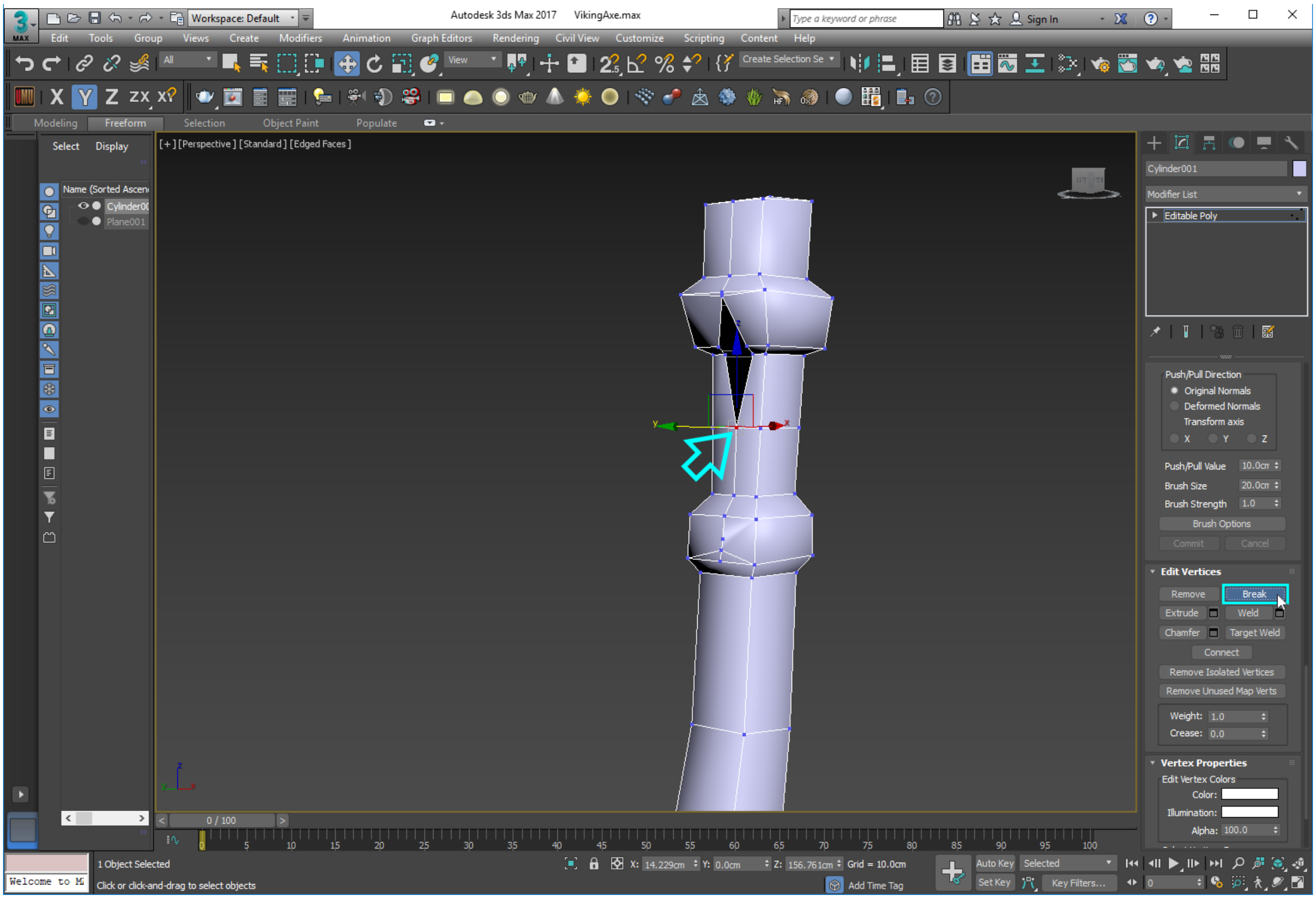
Repeat same step, select vertex and click “break”



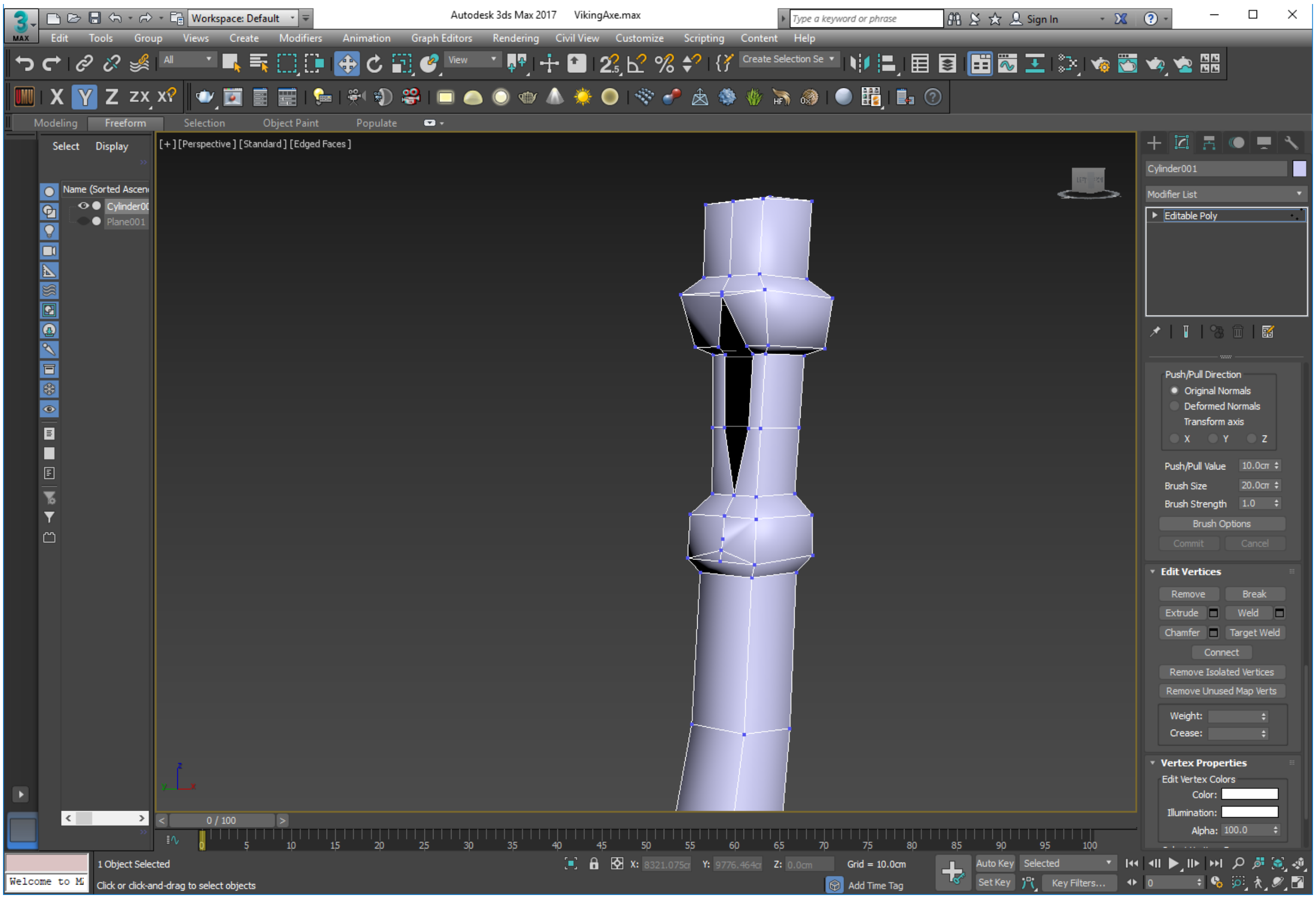
Adjust the vertex



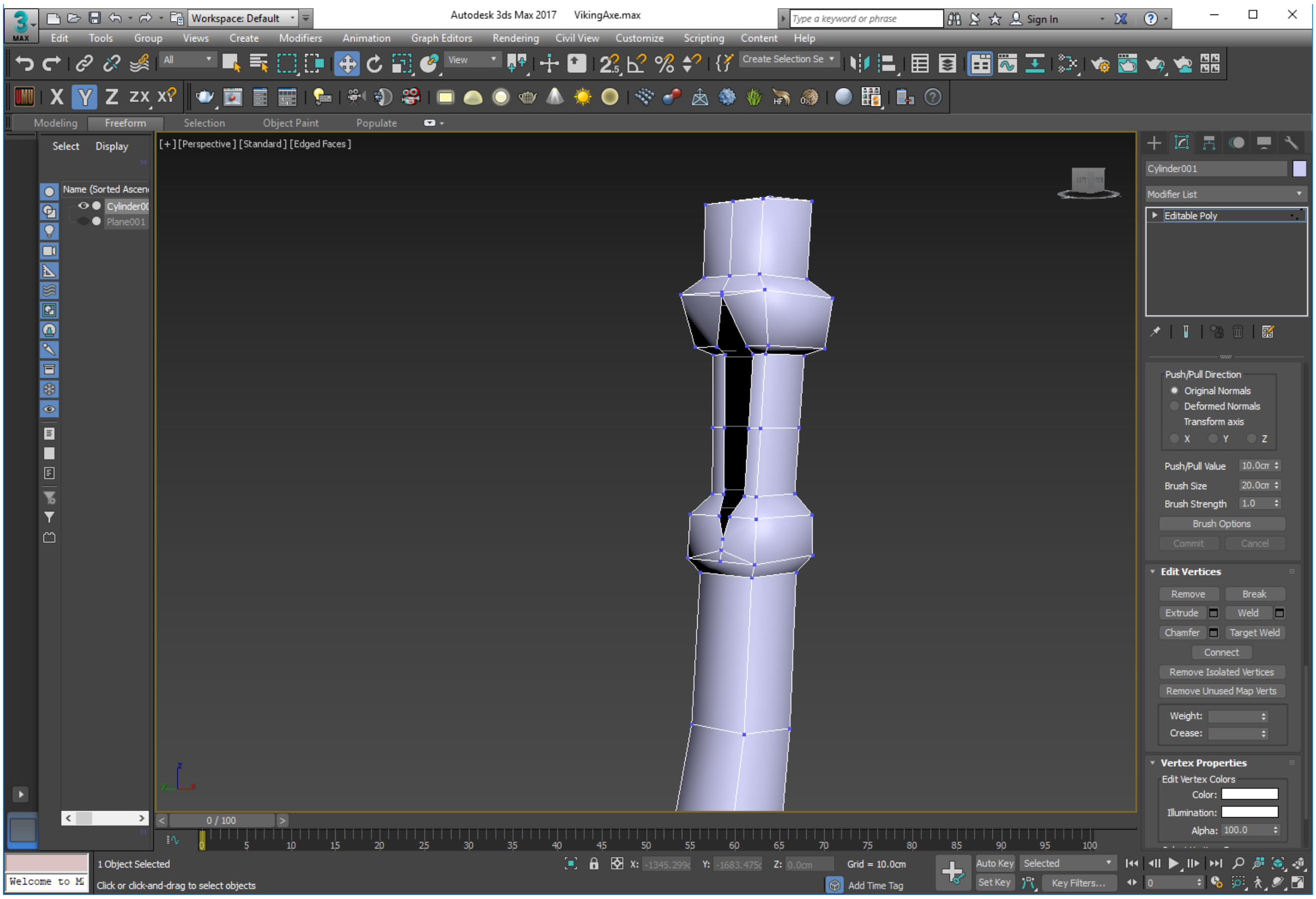
Repeat same step, select vertex and click “break”



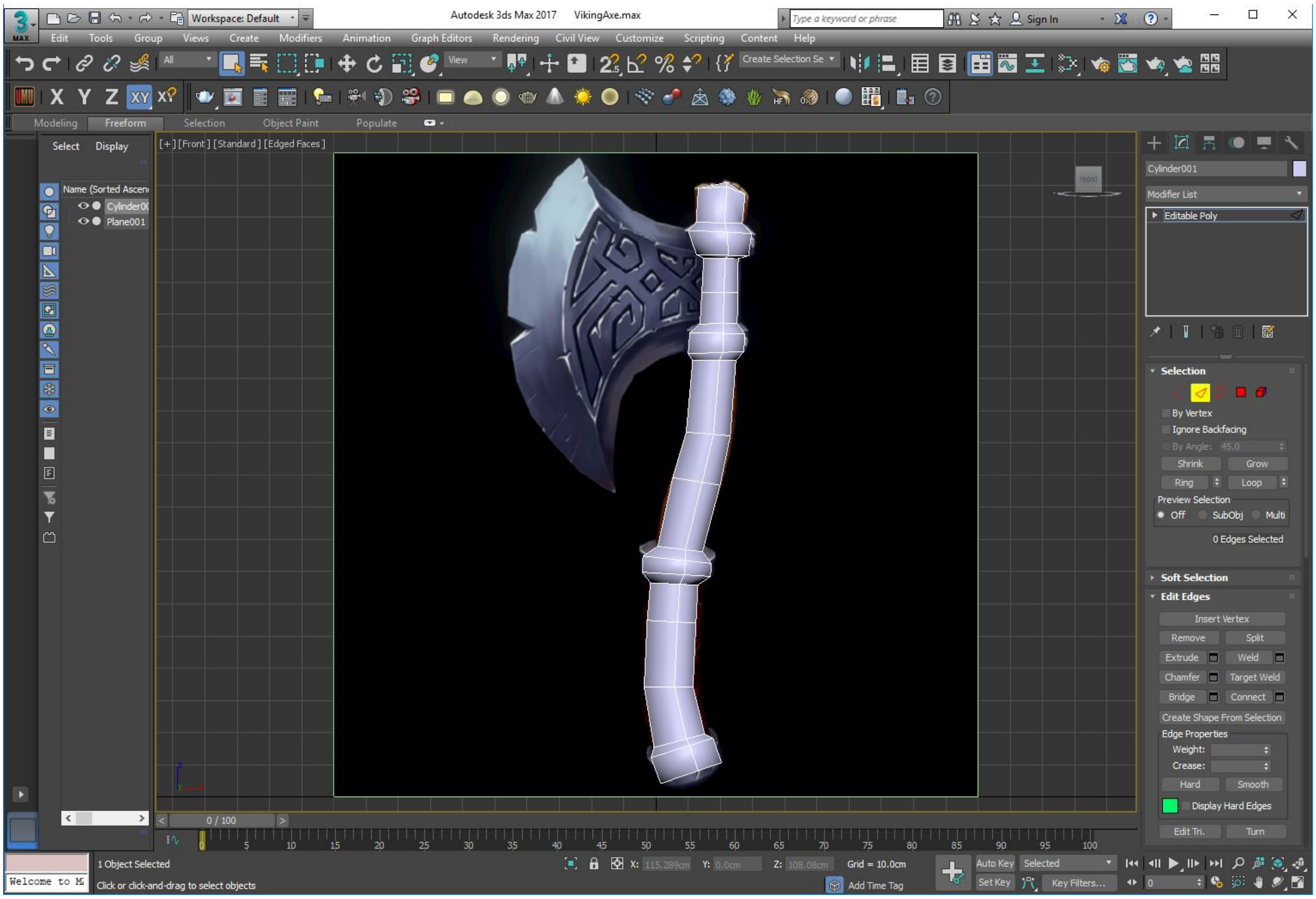
Adjust the vertex



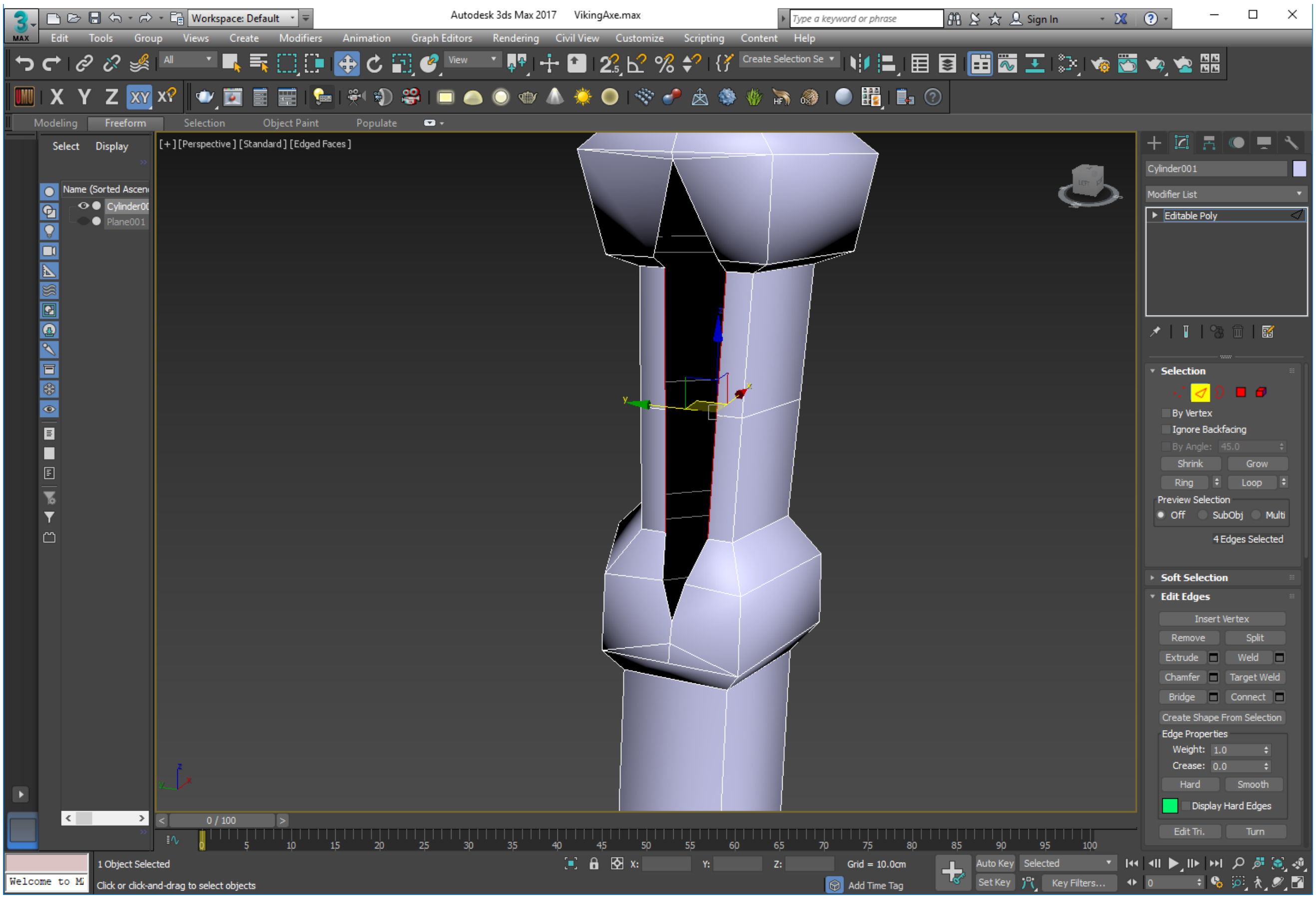
Repeat the same step, until like this:



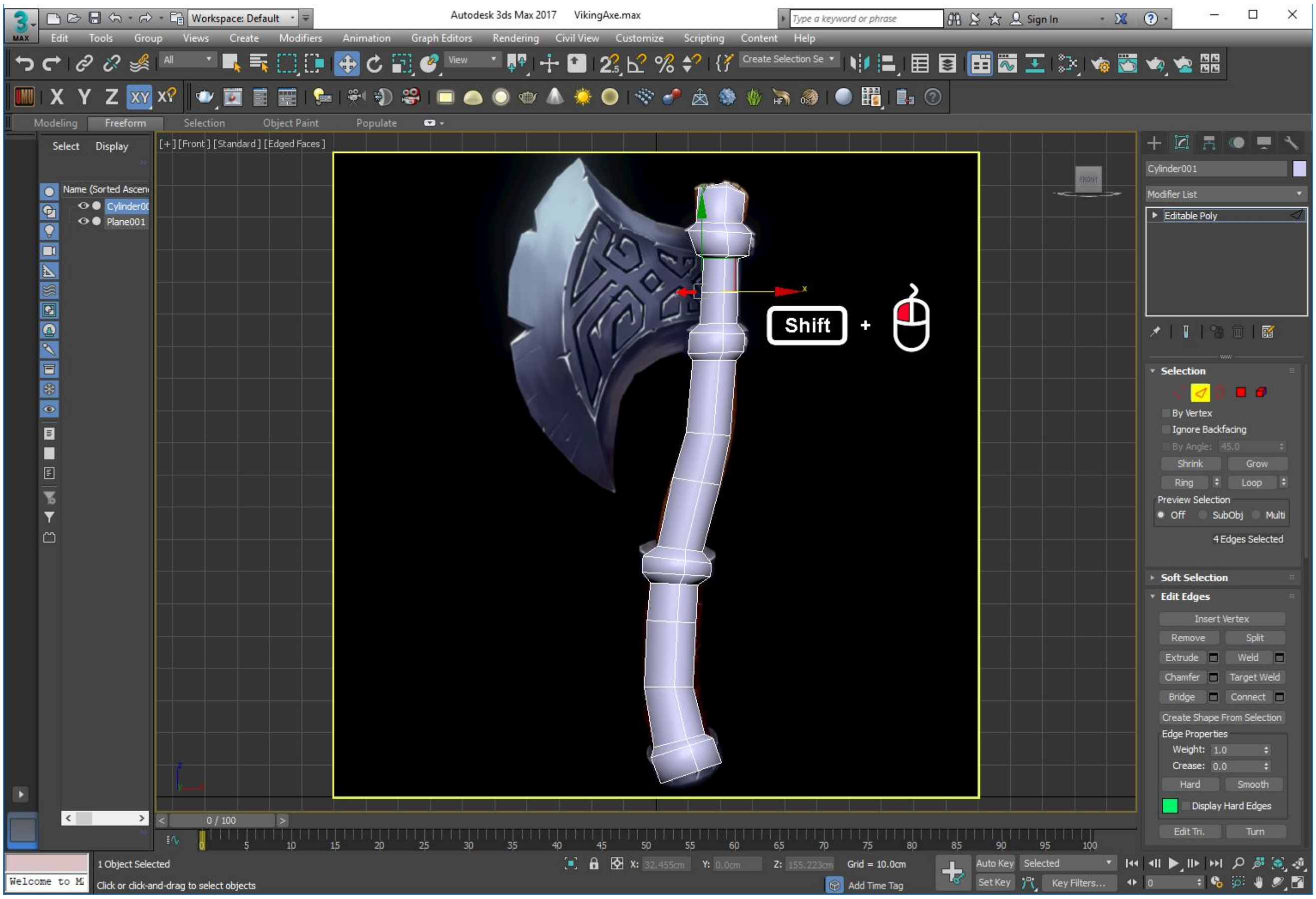
Unhide the plane



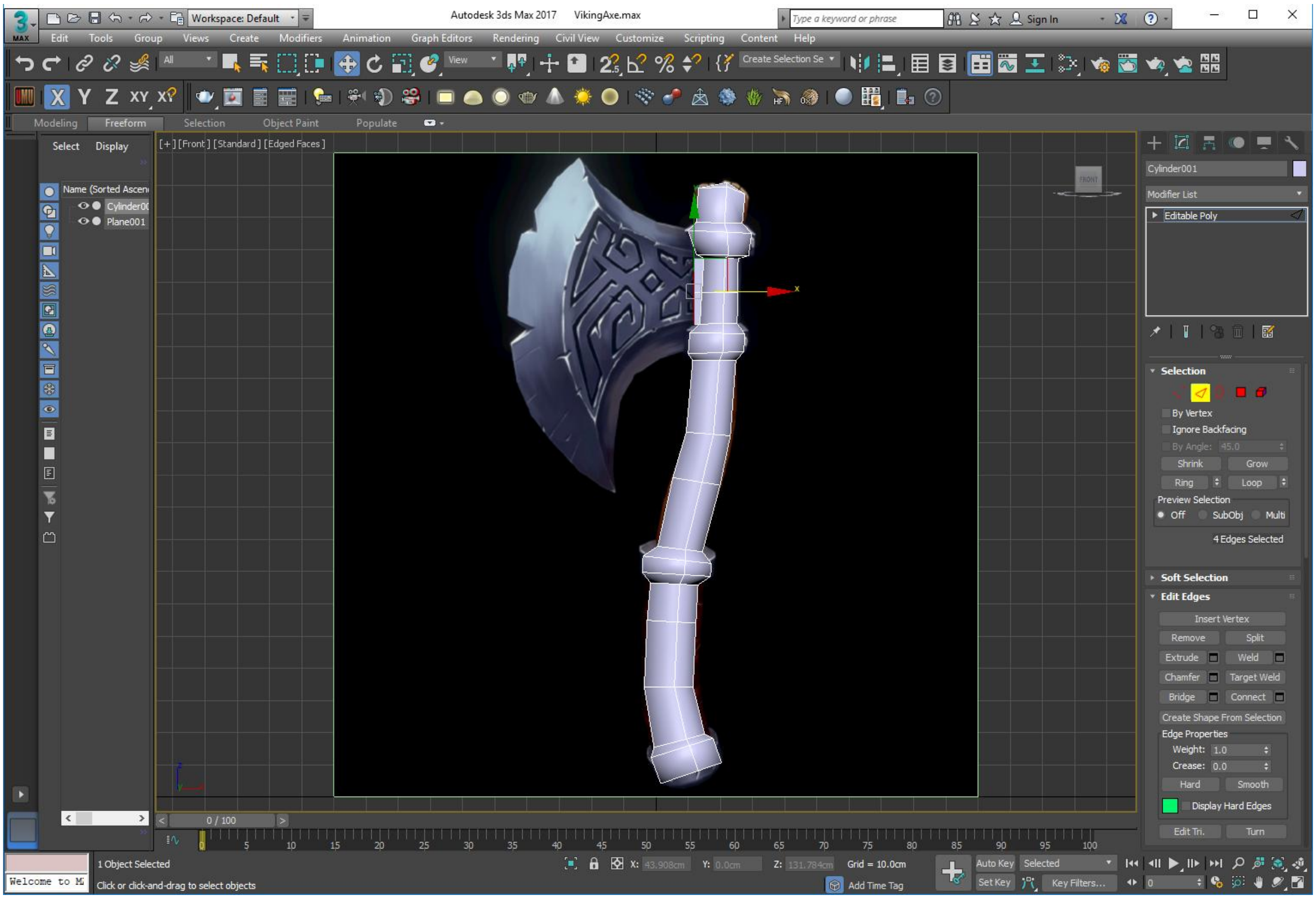
Click “Edges” and select edges



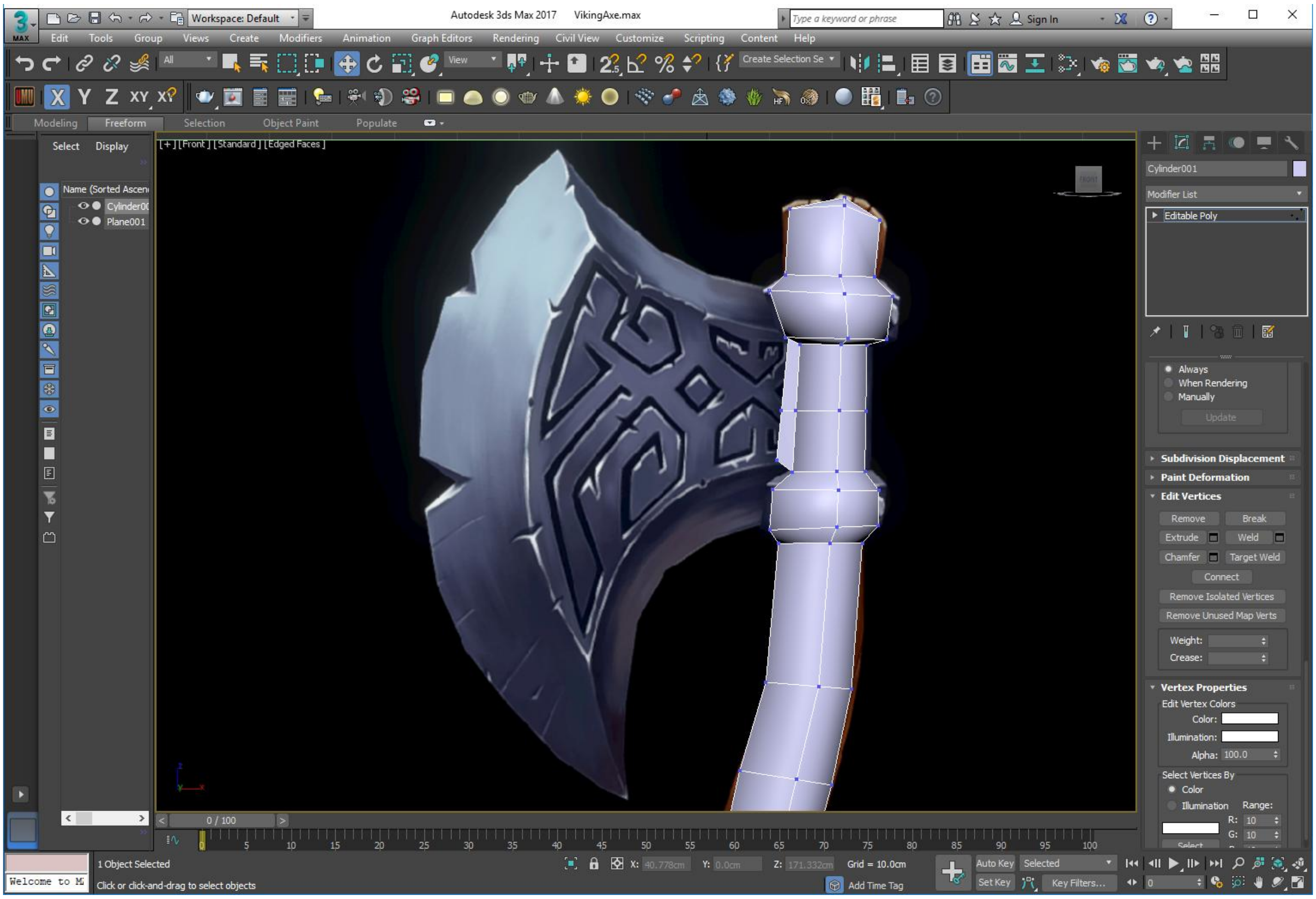
Hold shift and drag the edges for create axe blade



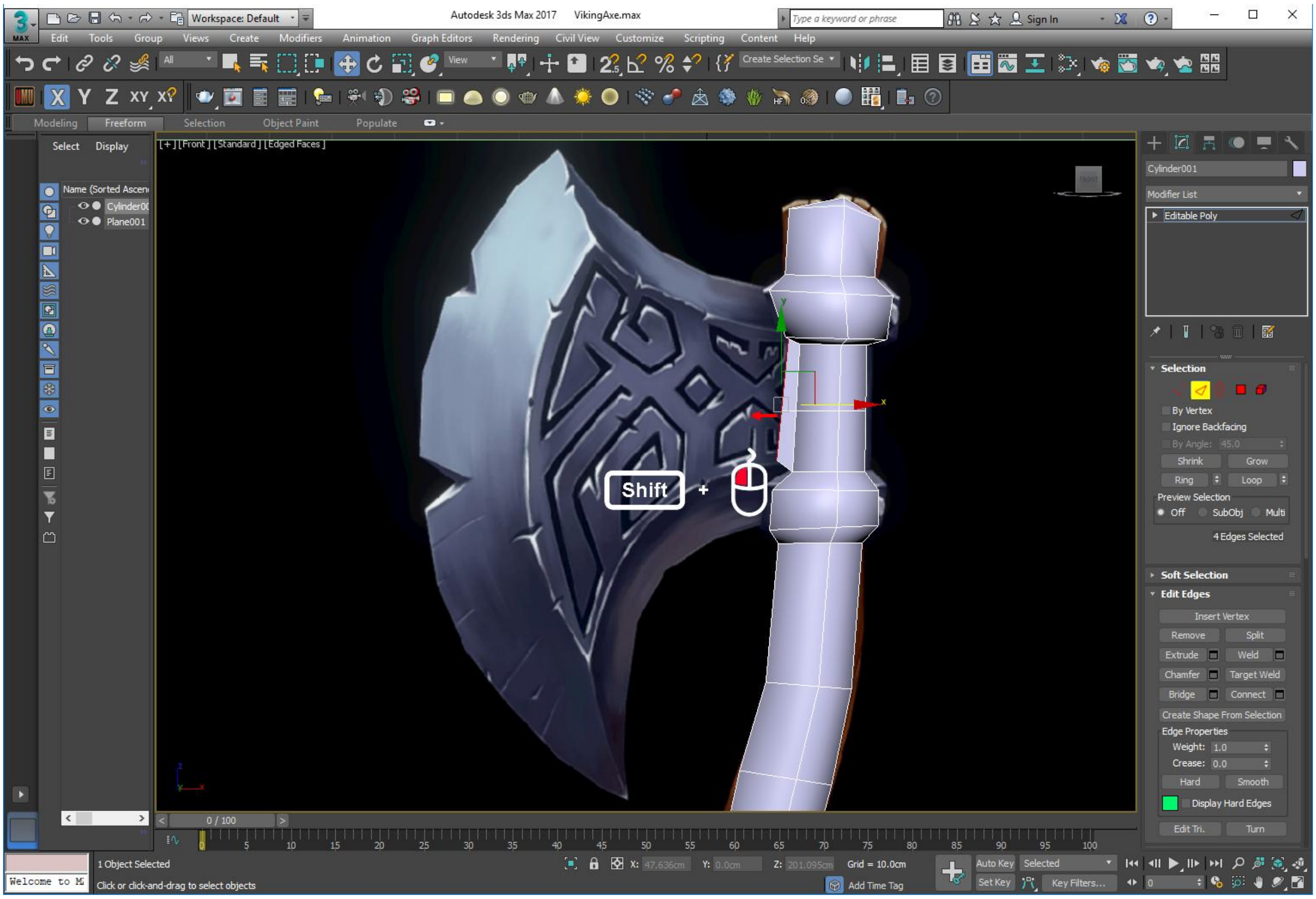
Adjust the edges



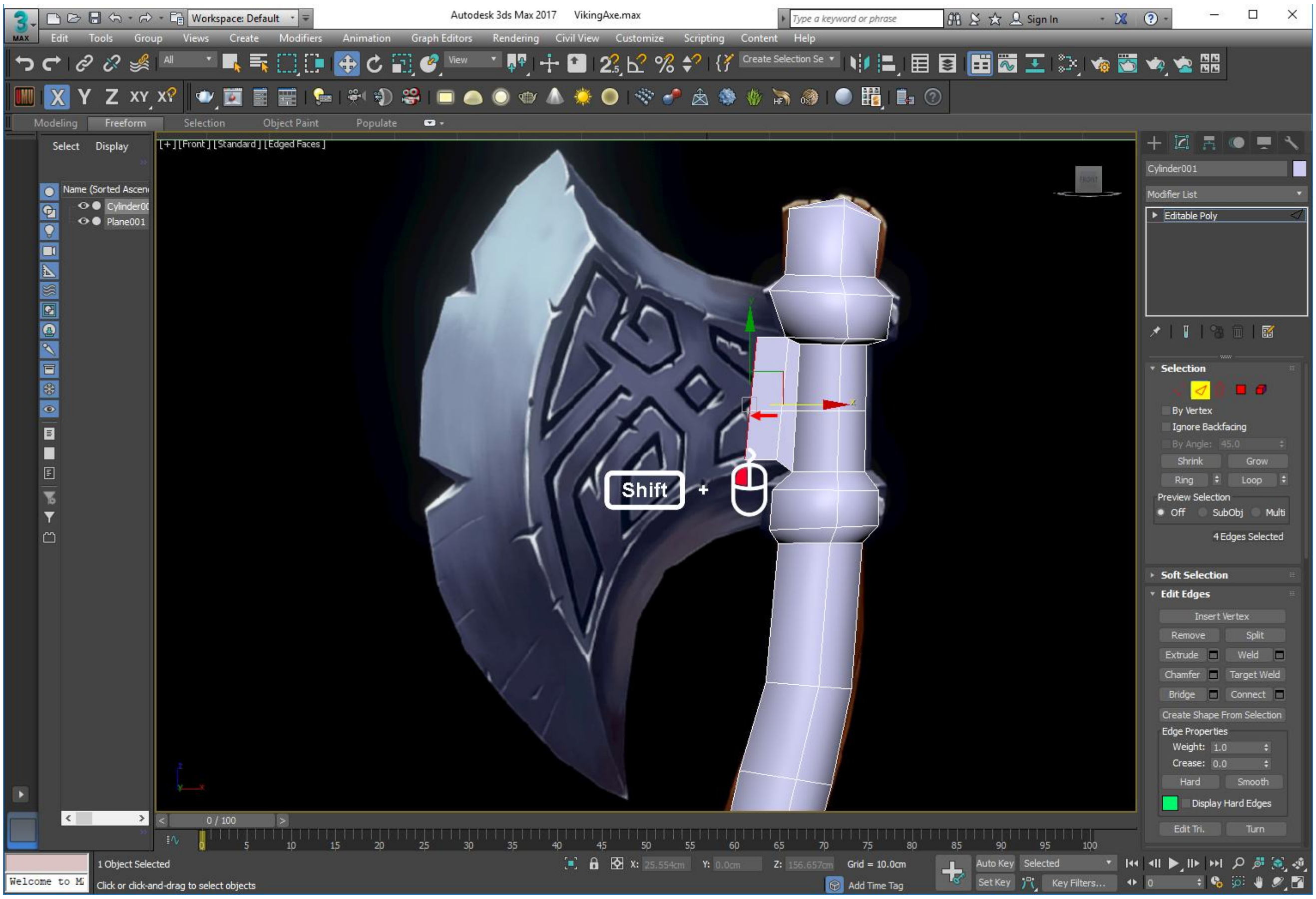
Adjust vertex



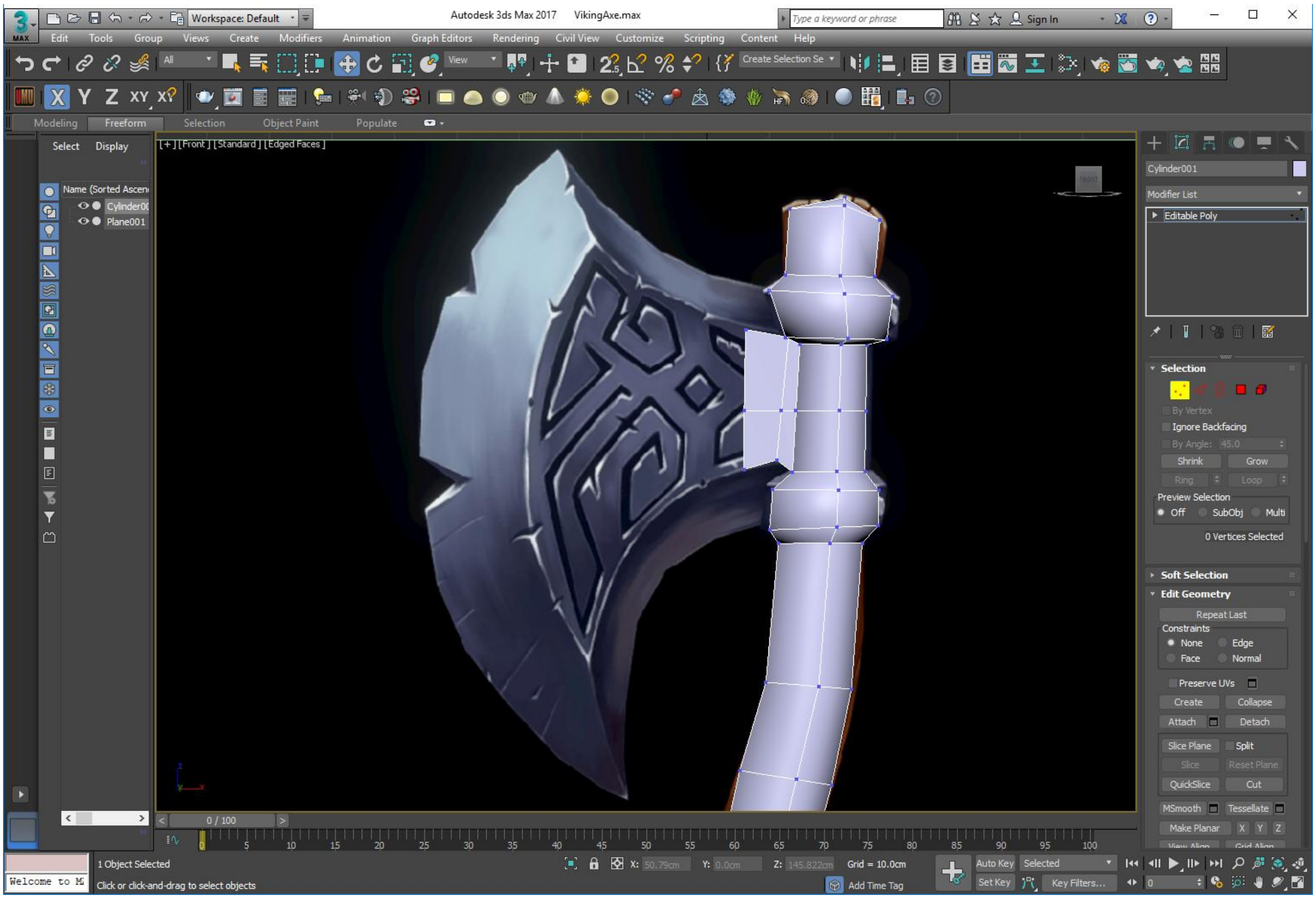
Repeat same step again, select edges, hold shift and drag to left



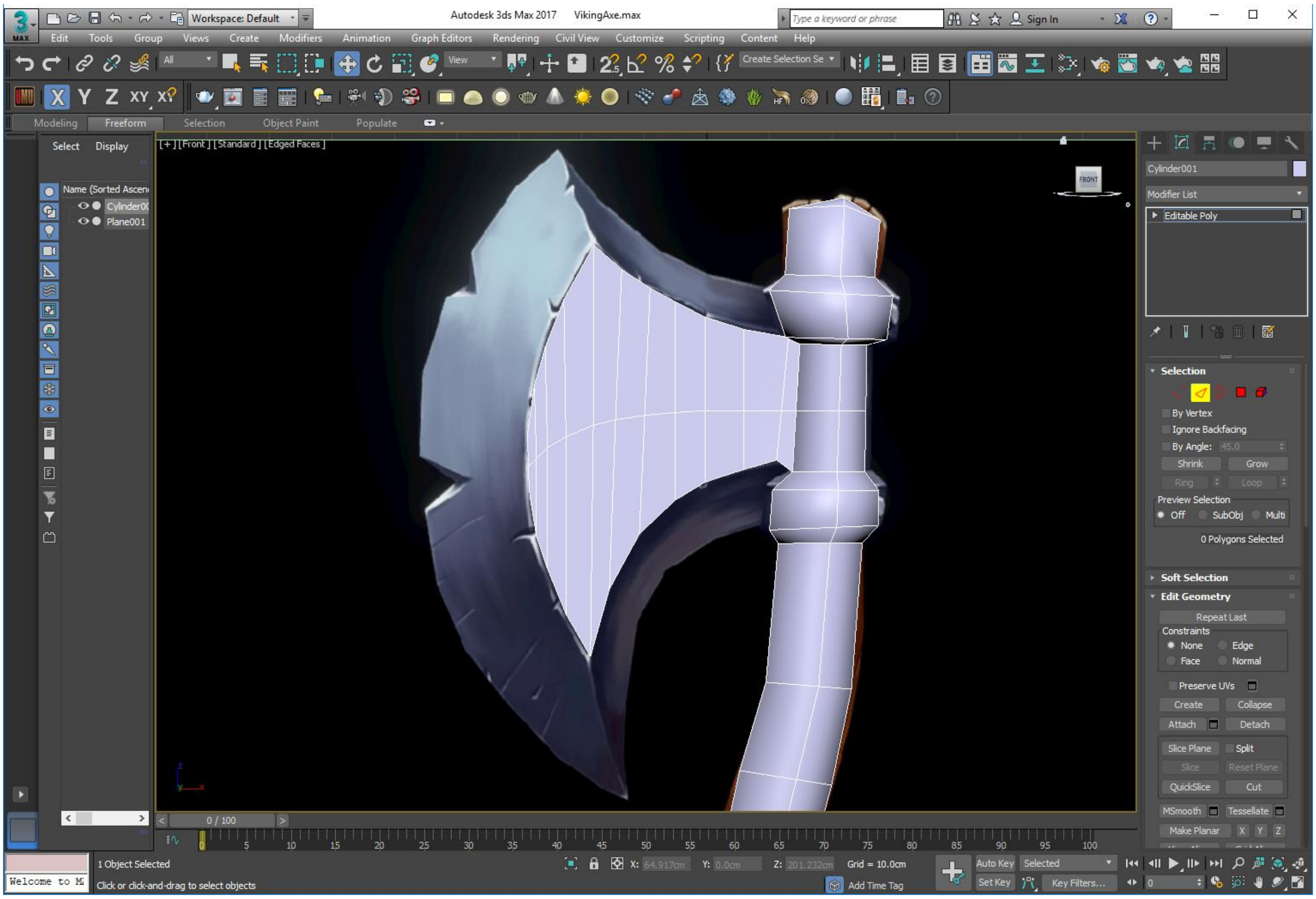
Hold shift and drag the edges



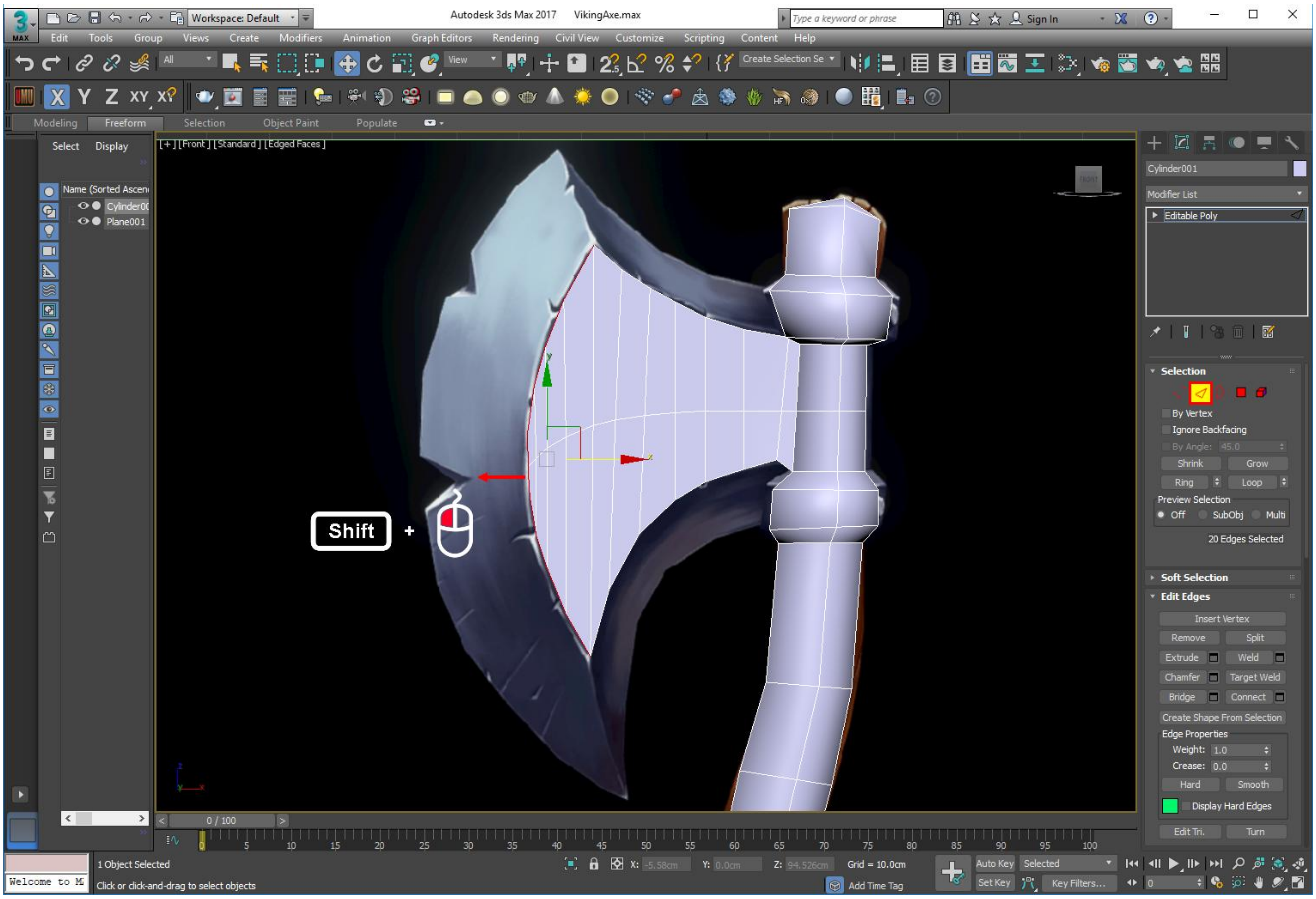
Adjust the vertex



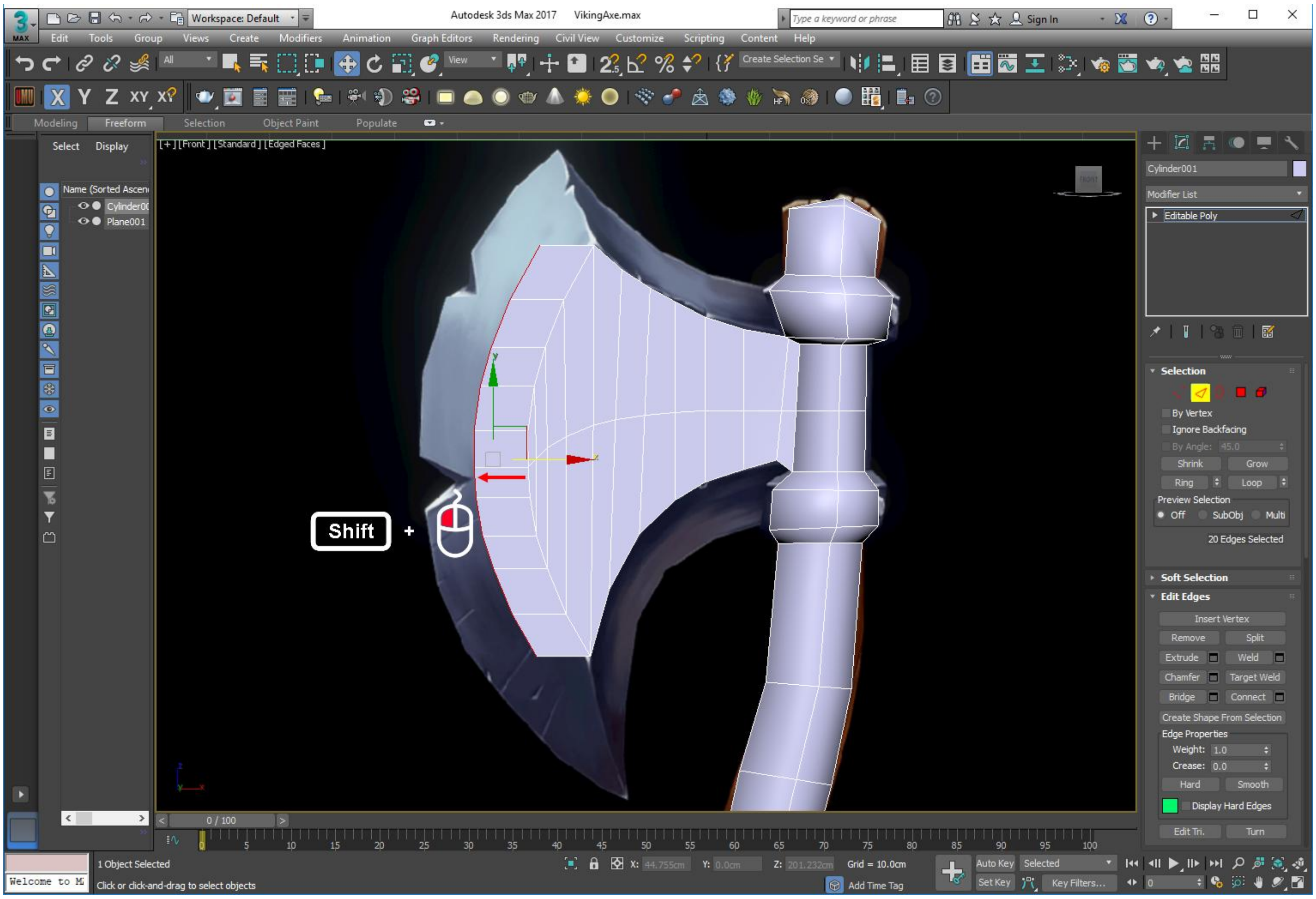
Repeat same step until complete the axe blade



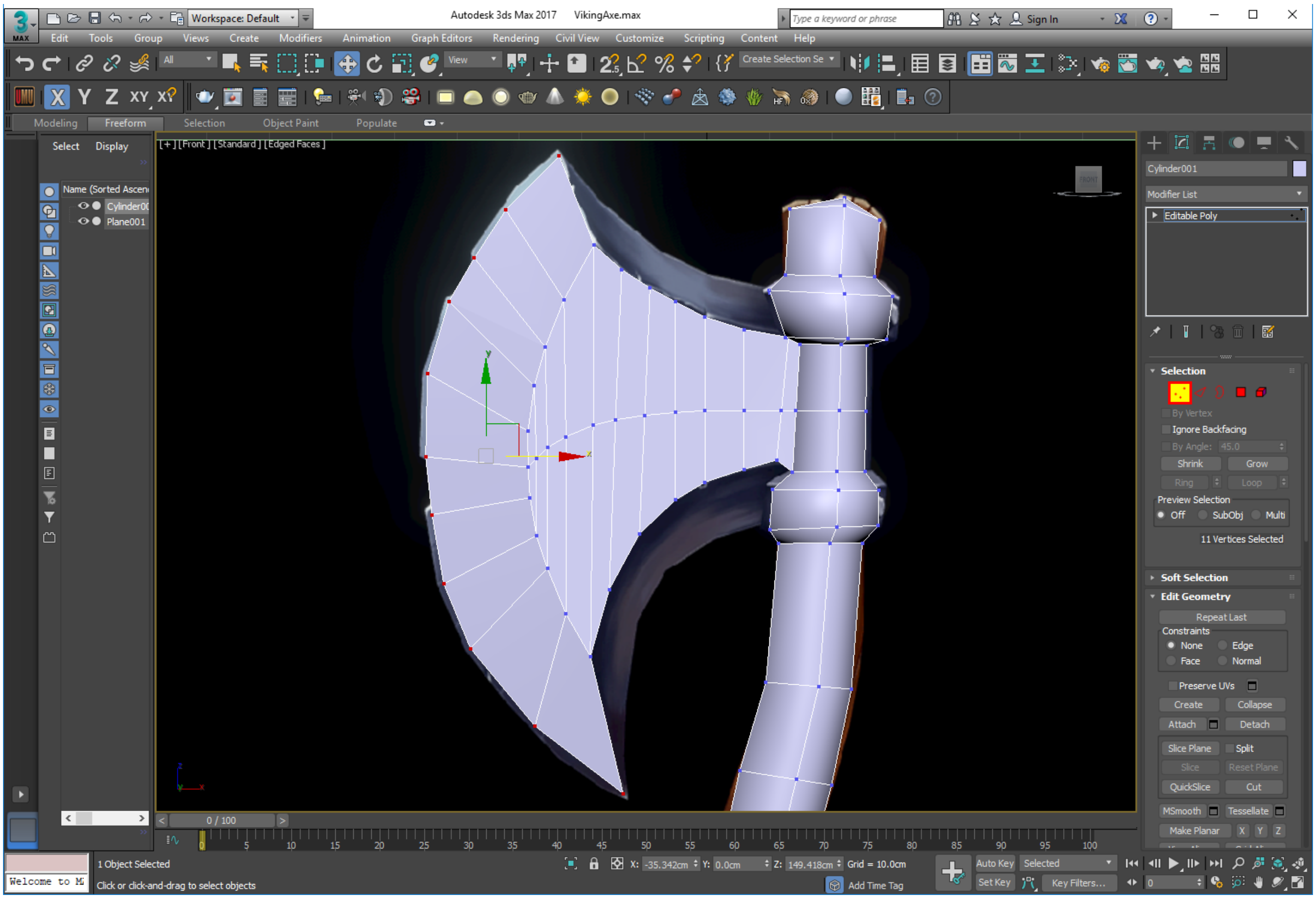
Select the edges, hold shift and drag it to left



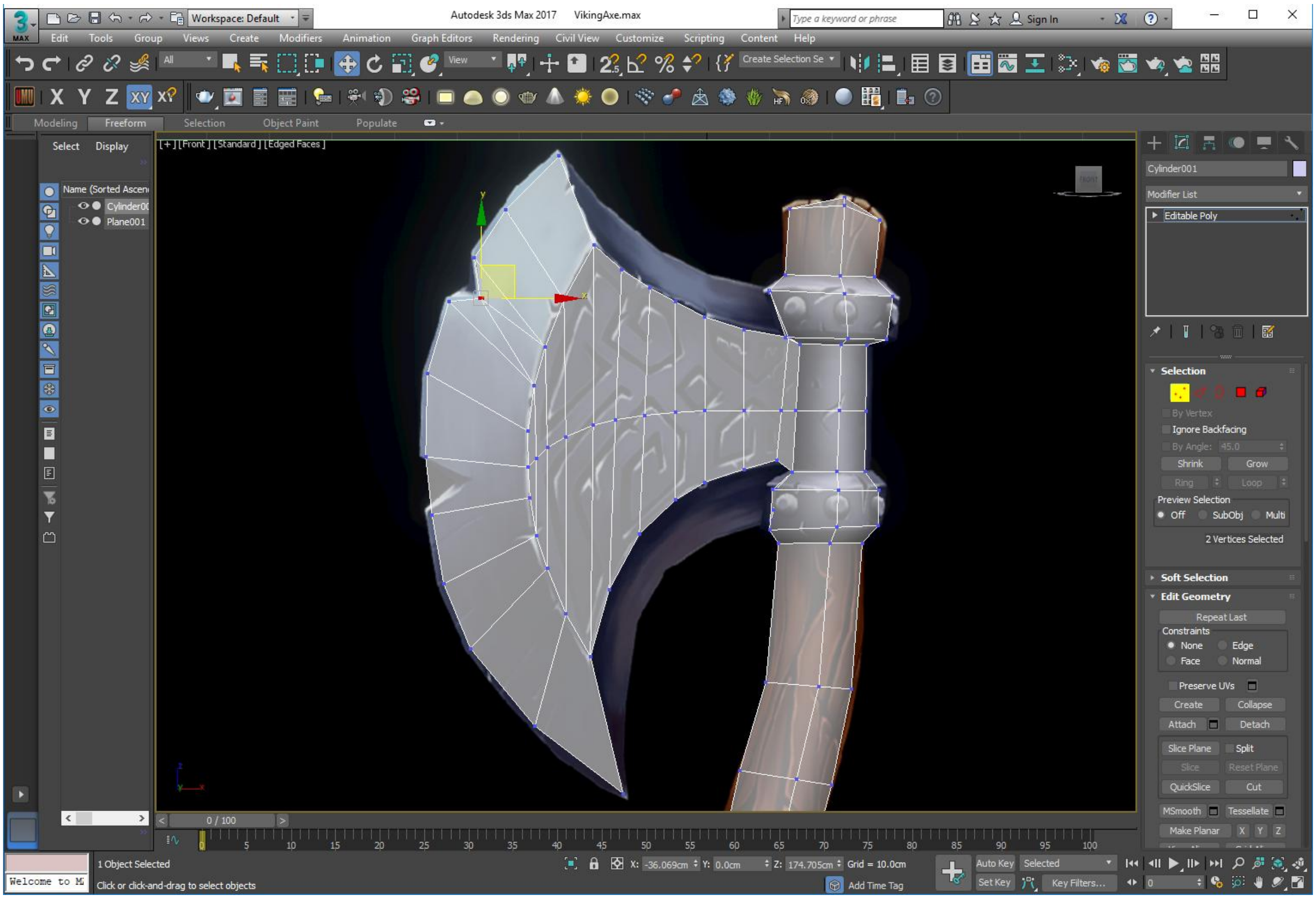
After drag it to left

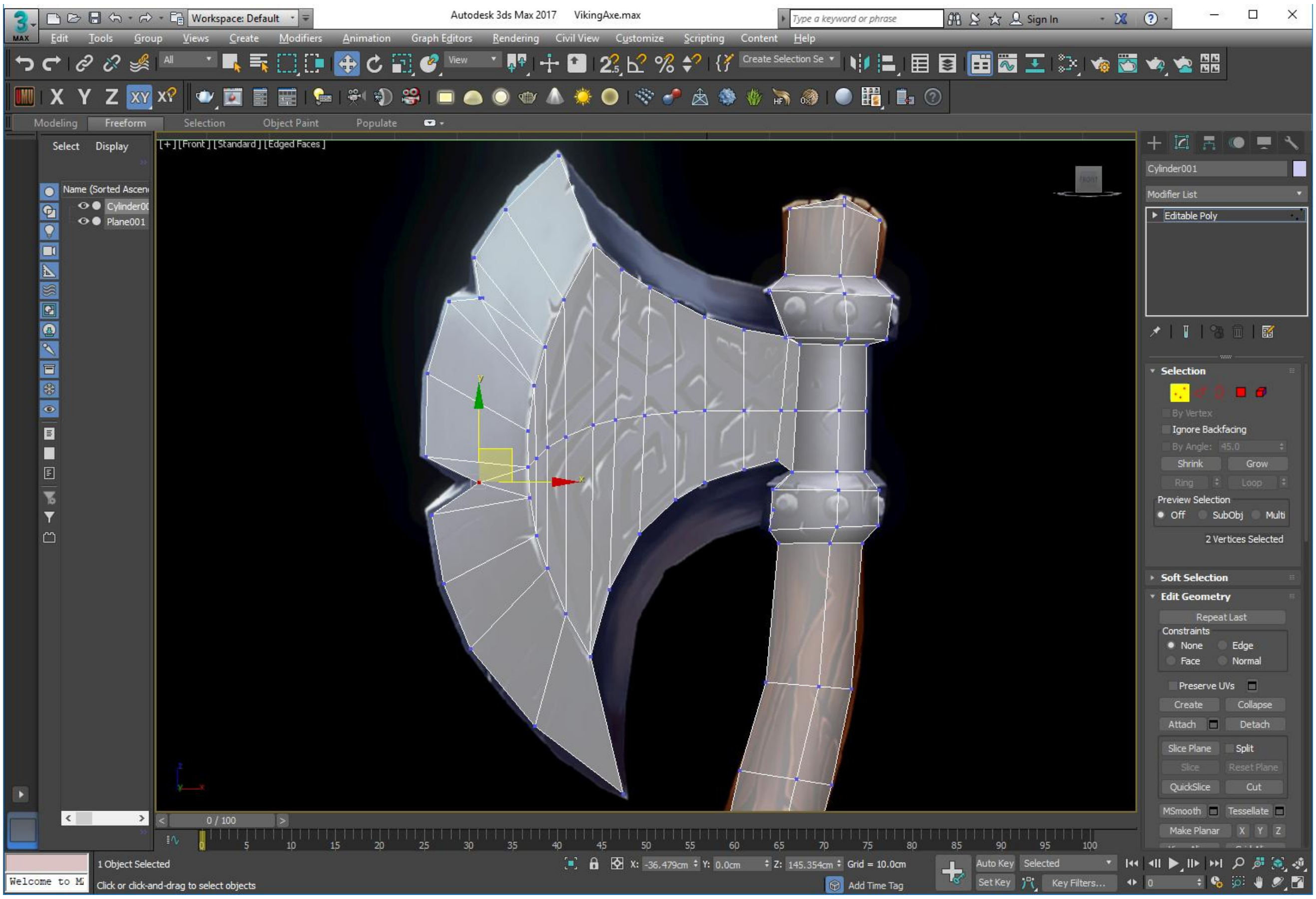


Adjust the vertex for axe cutting-edge

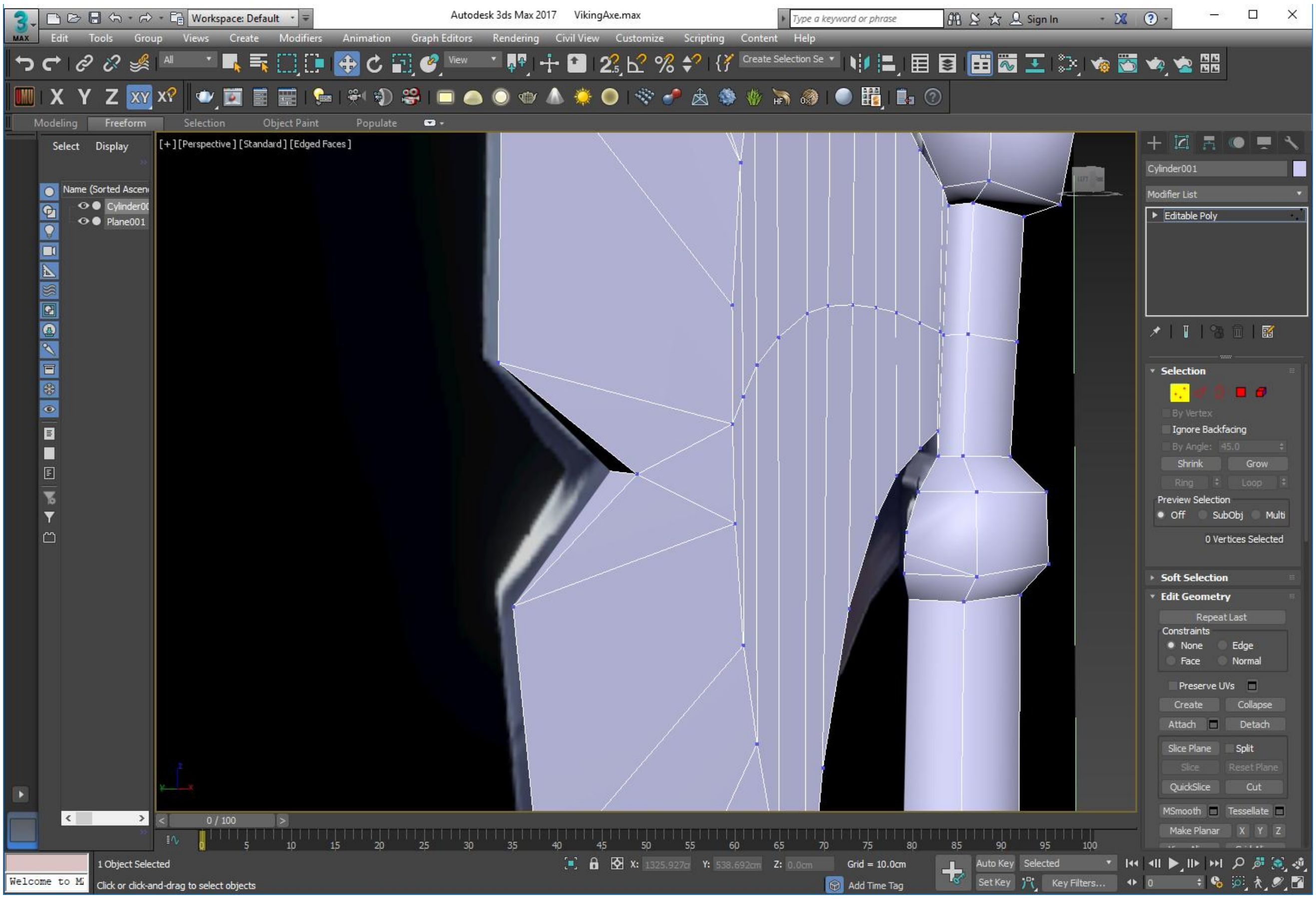


Add vertex for blunt edges

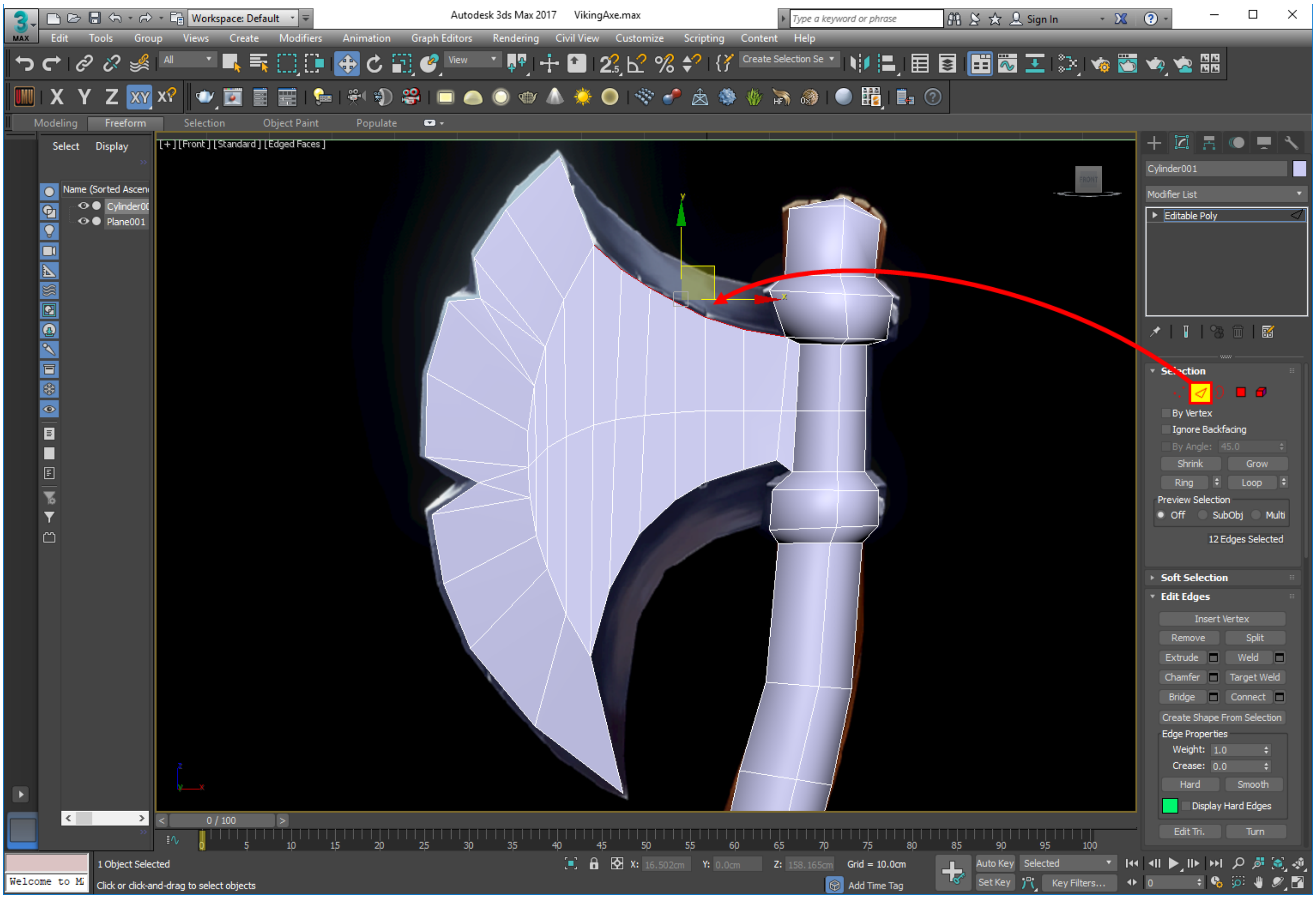




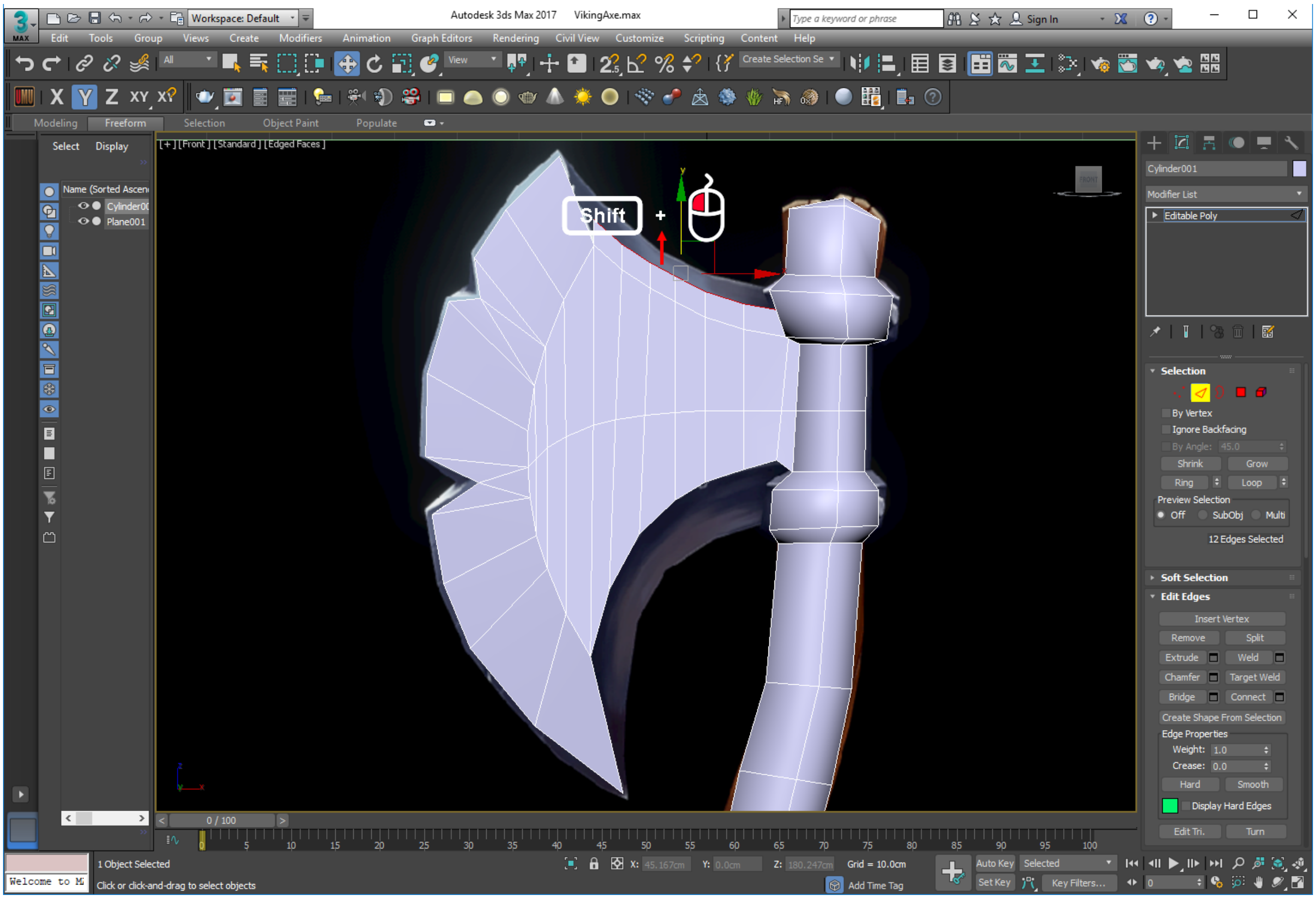
After complete blunt edges



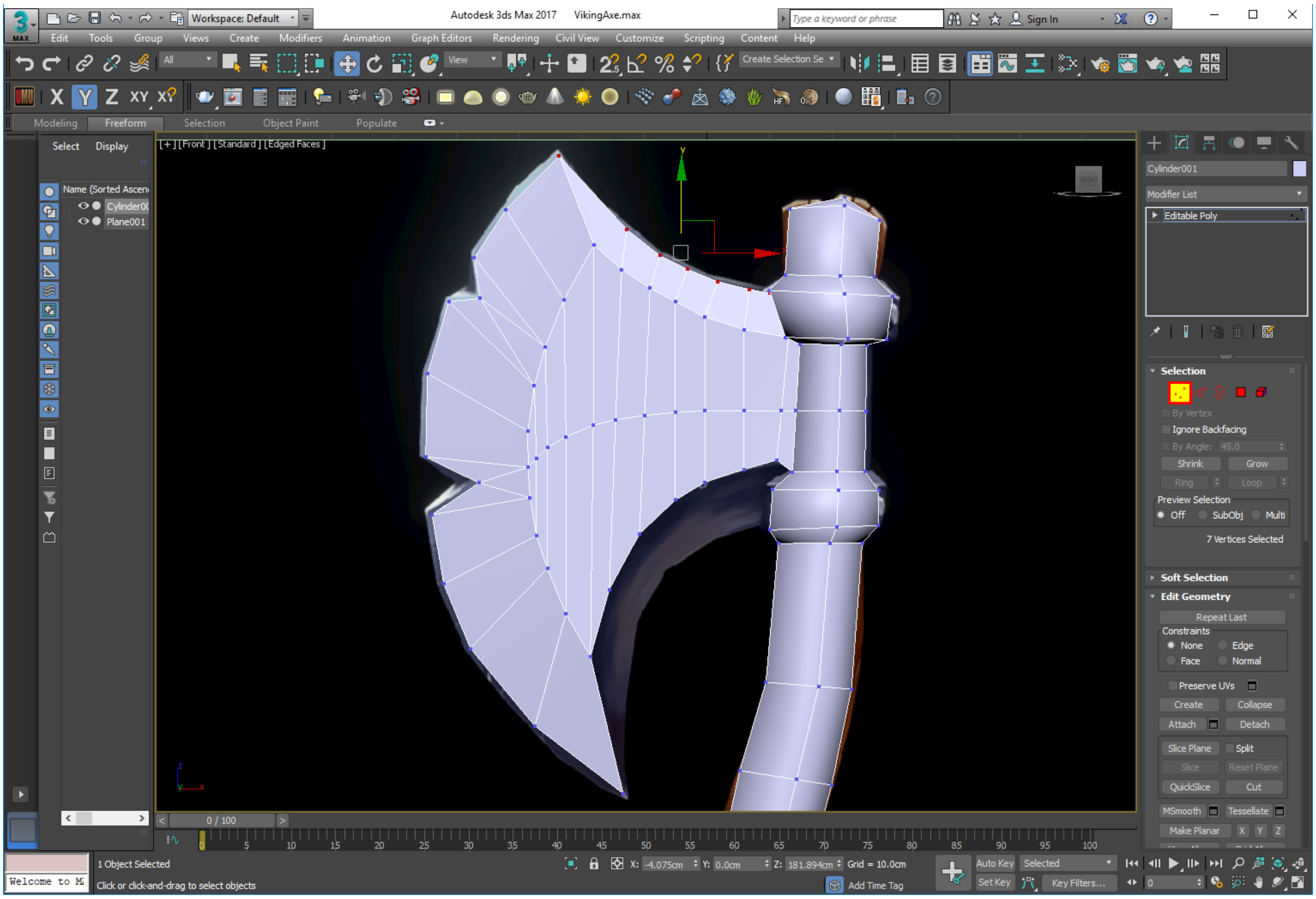
Click edges and select the edges at here



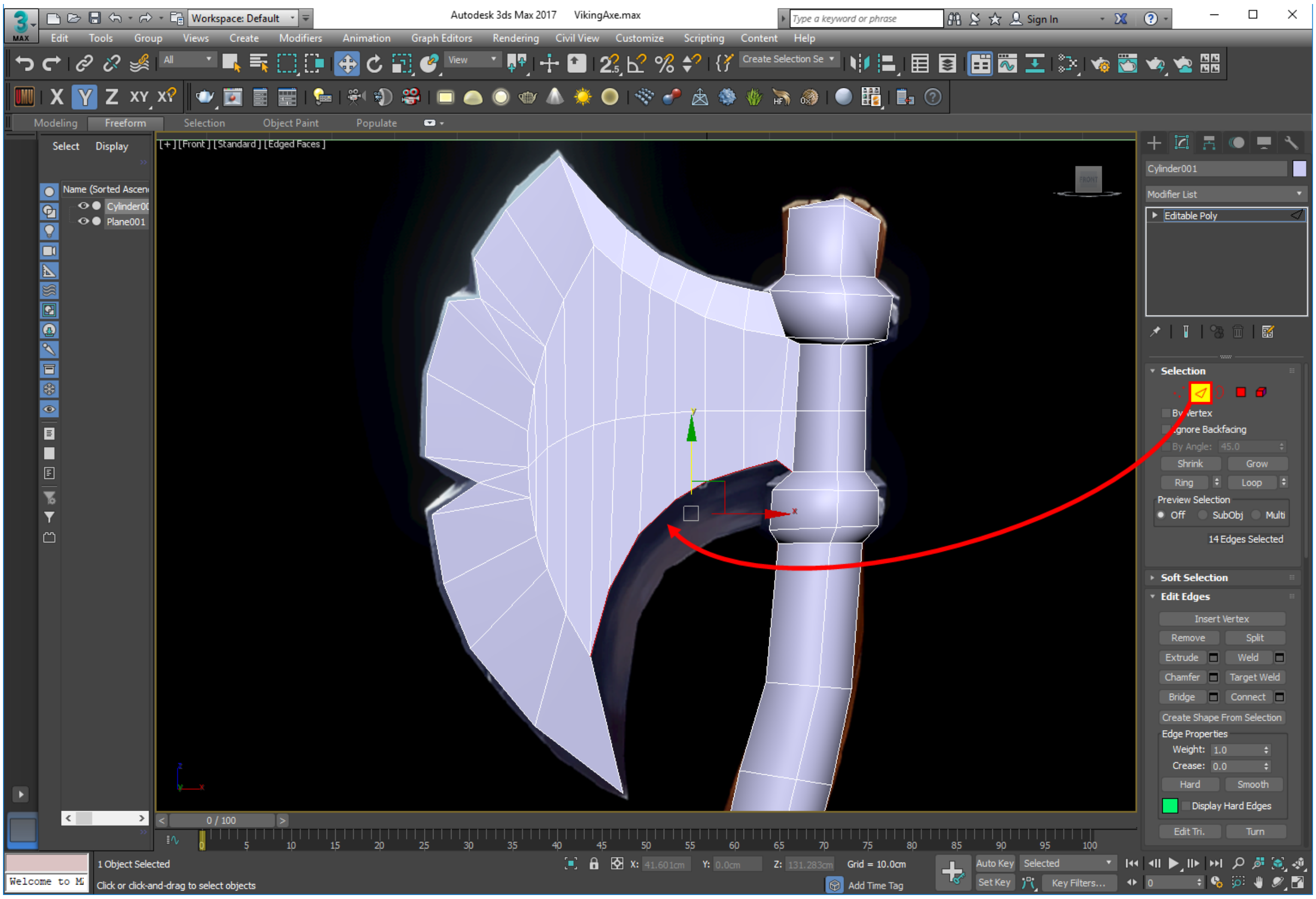
Hold shift and drag it up



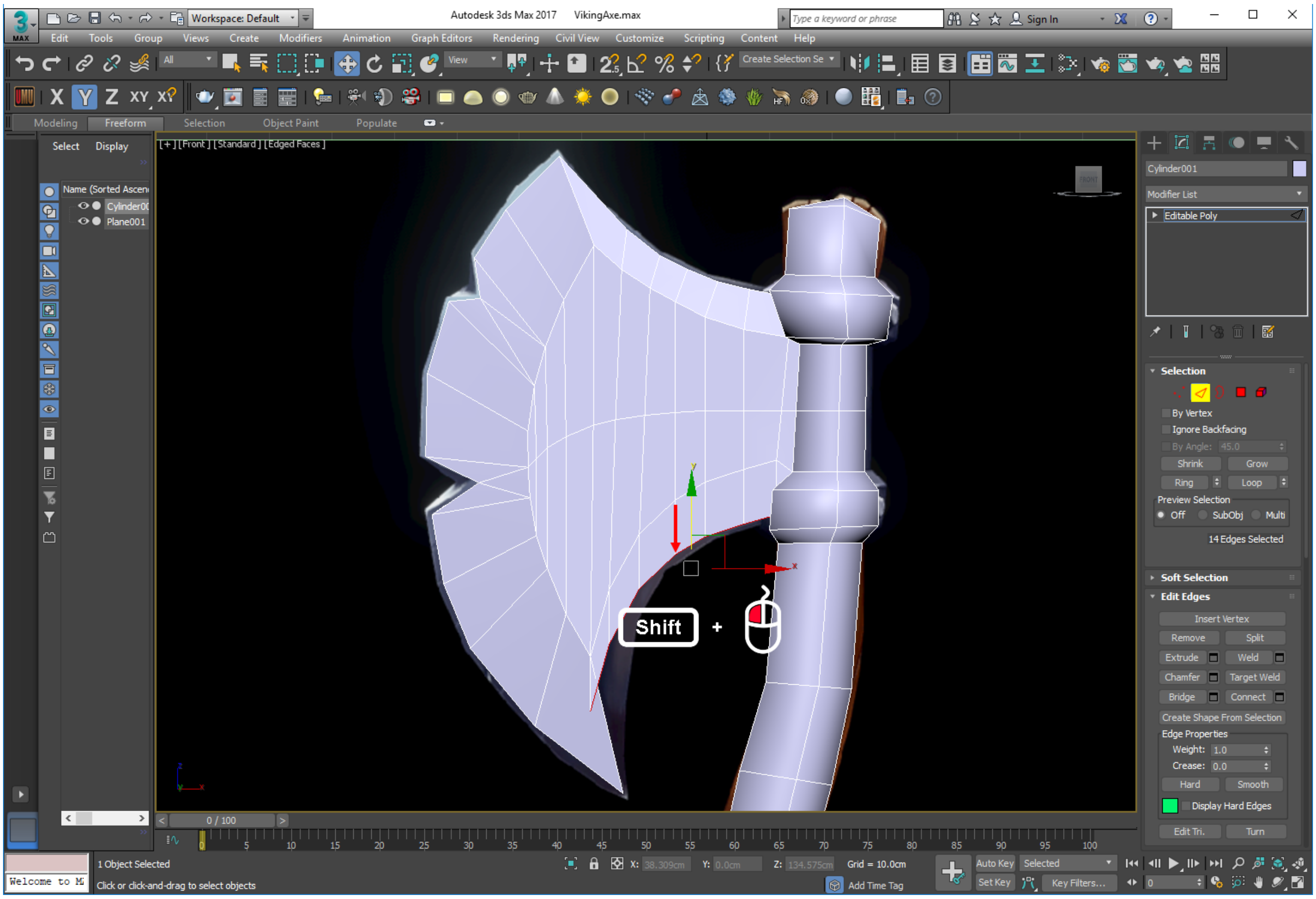
Adjust the vertex



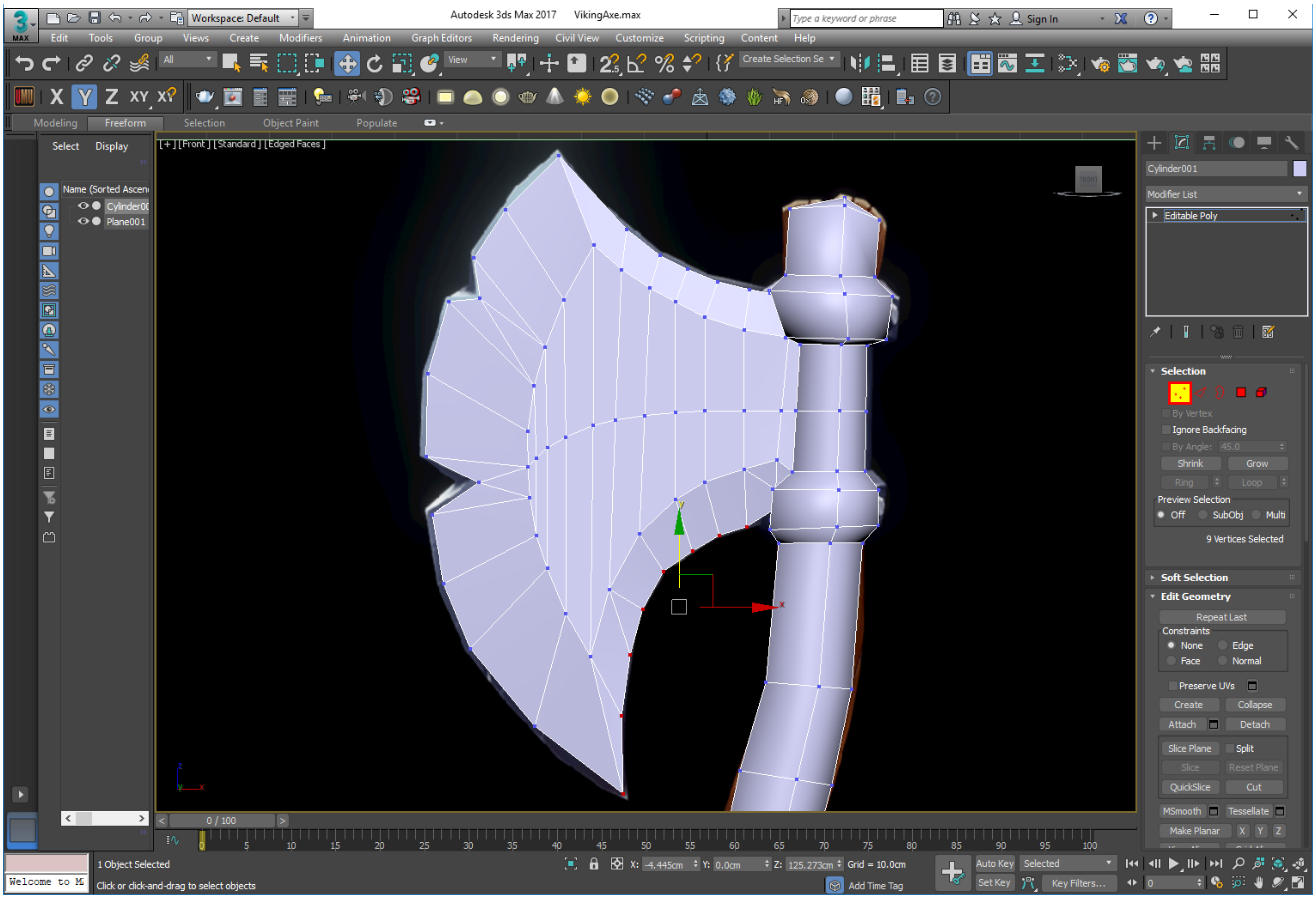
Select edge at here:



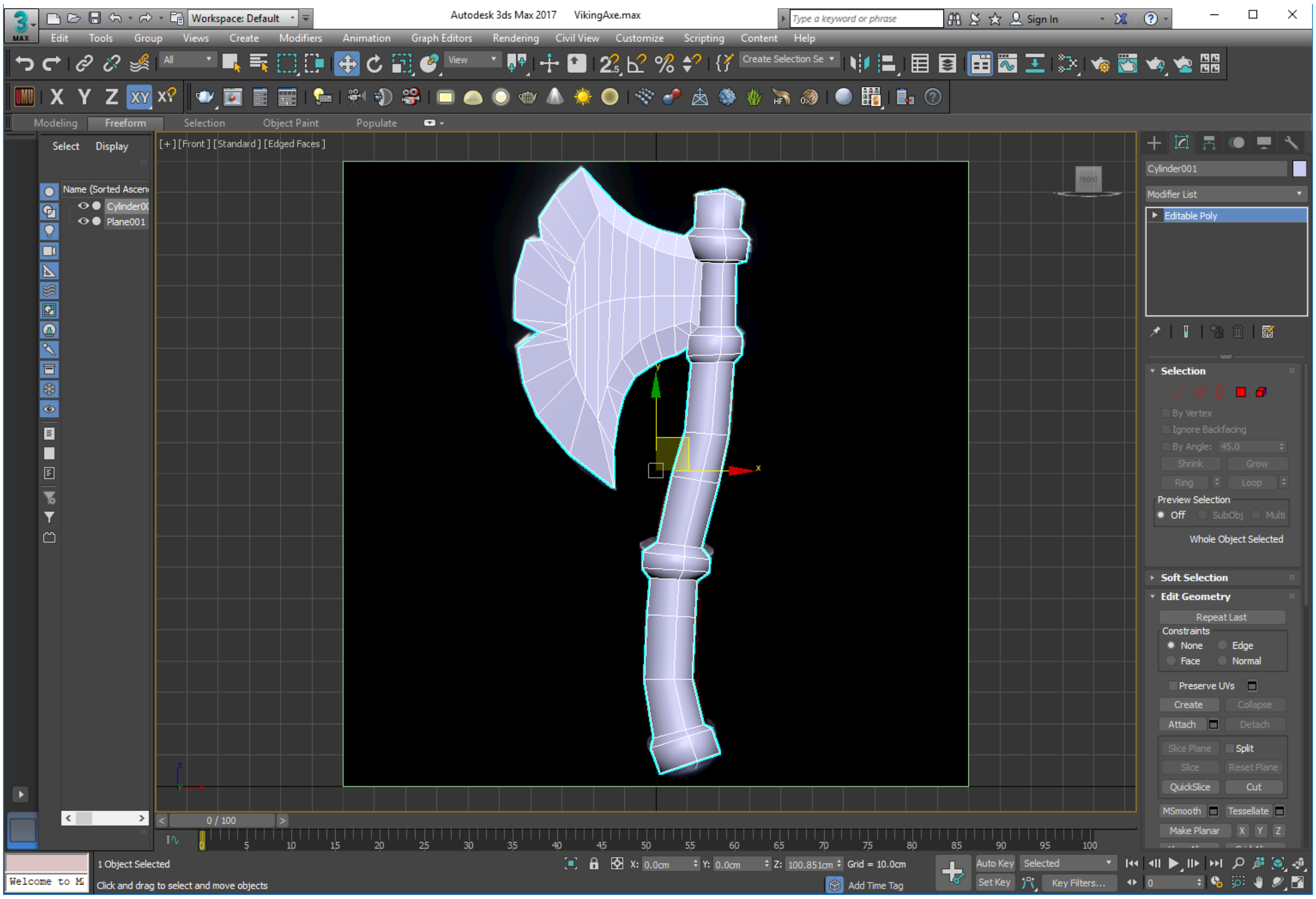
Hold shift and drag it down



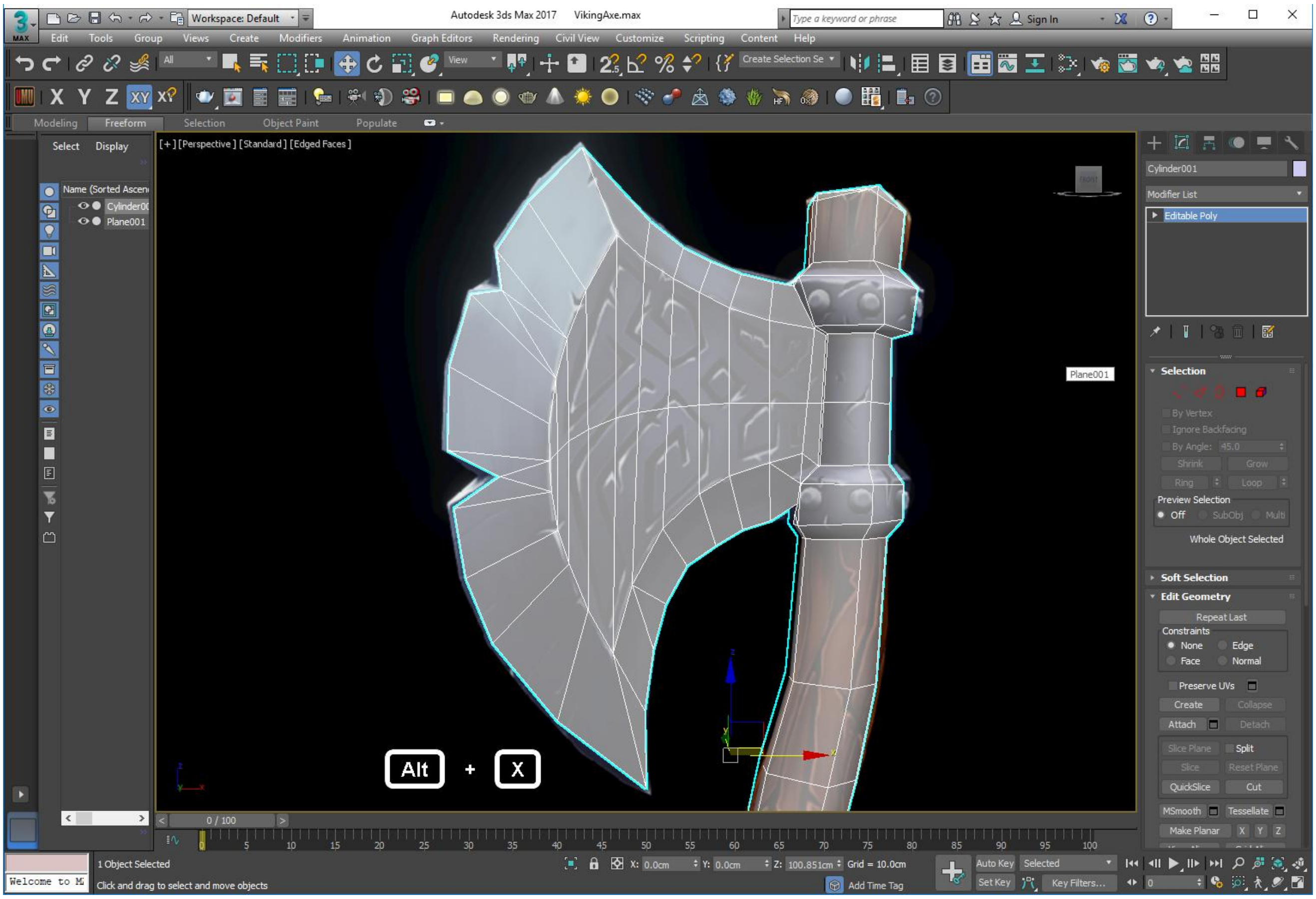
Adjust the vertex



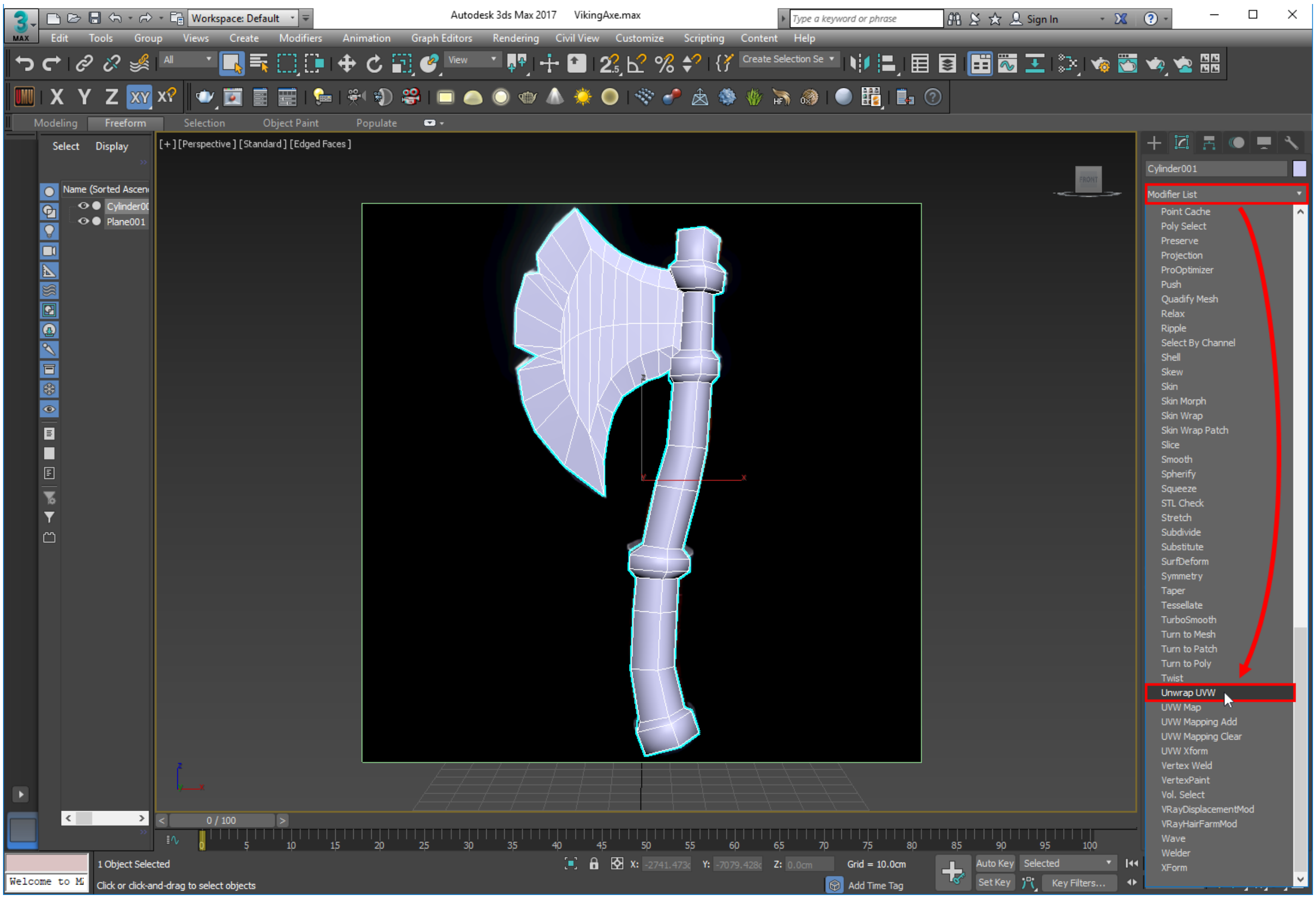
Done, here is lowpoly axe



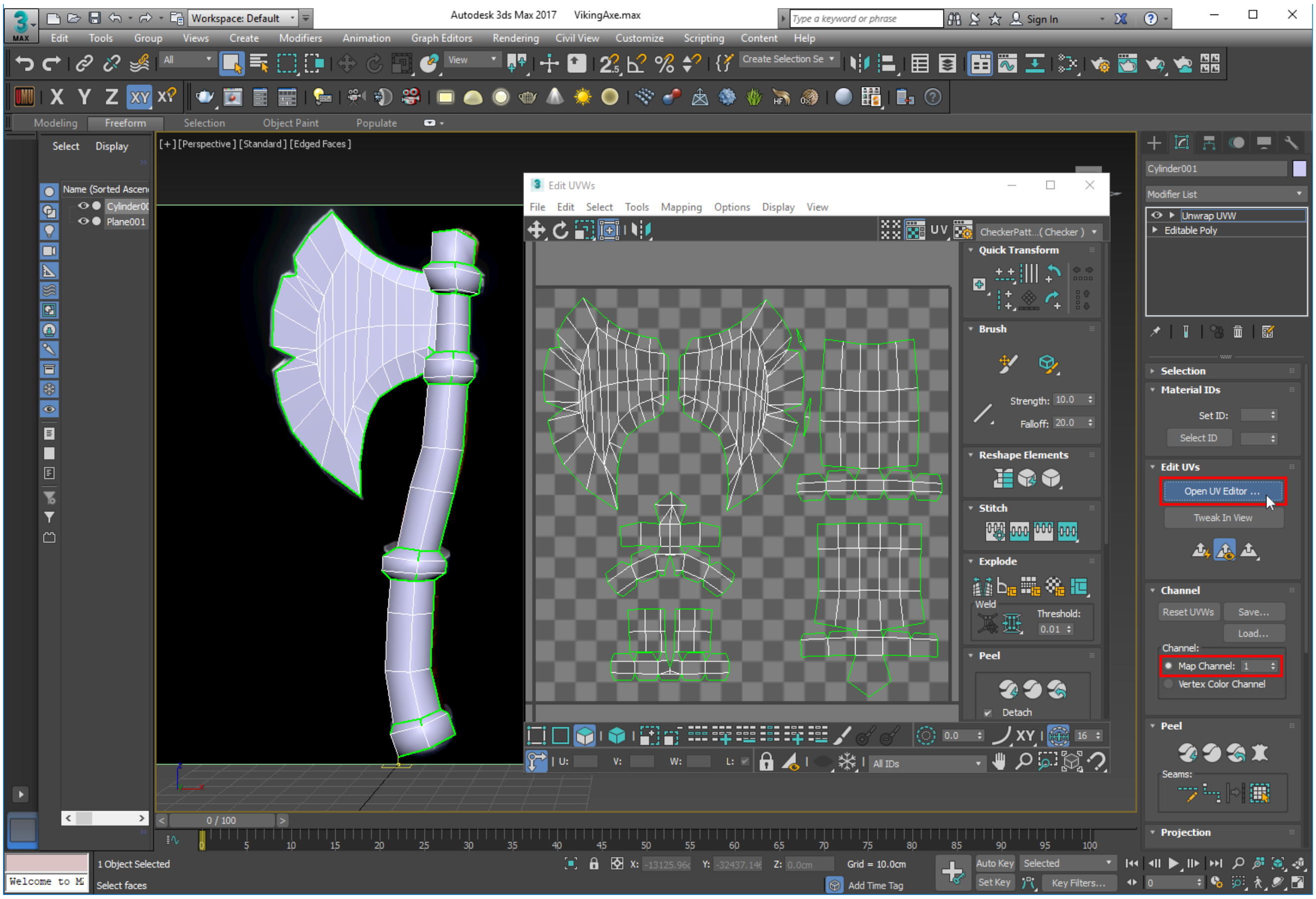
Press Alt + X to check the axe



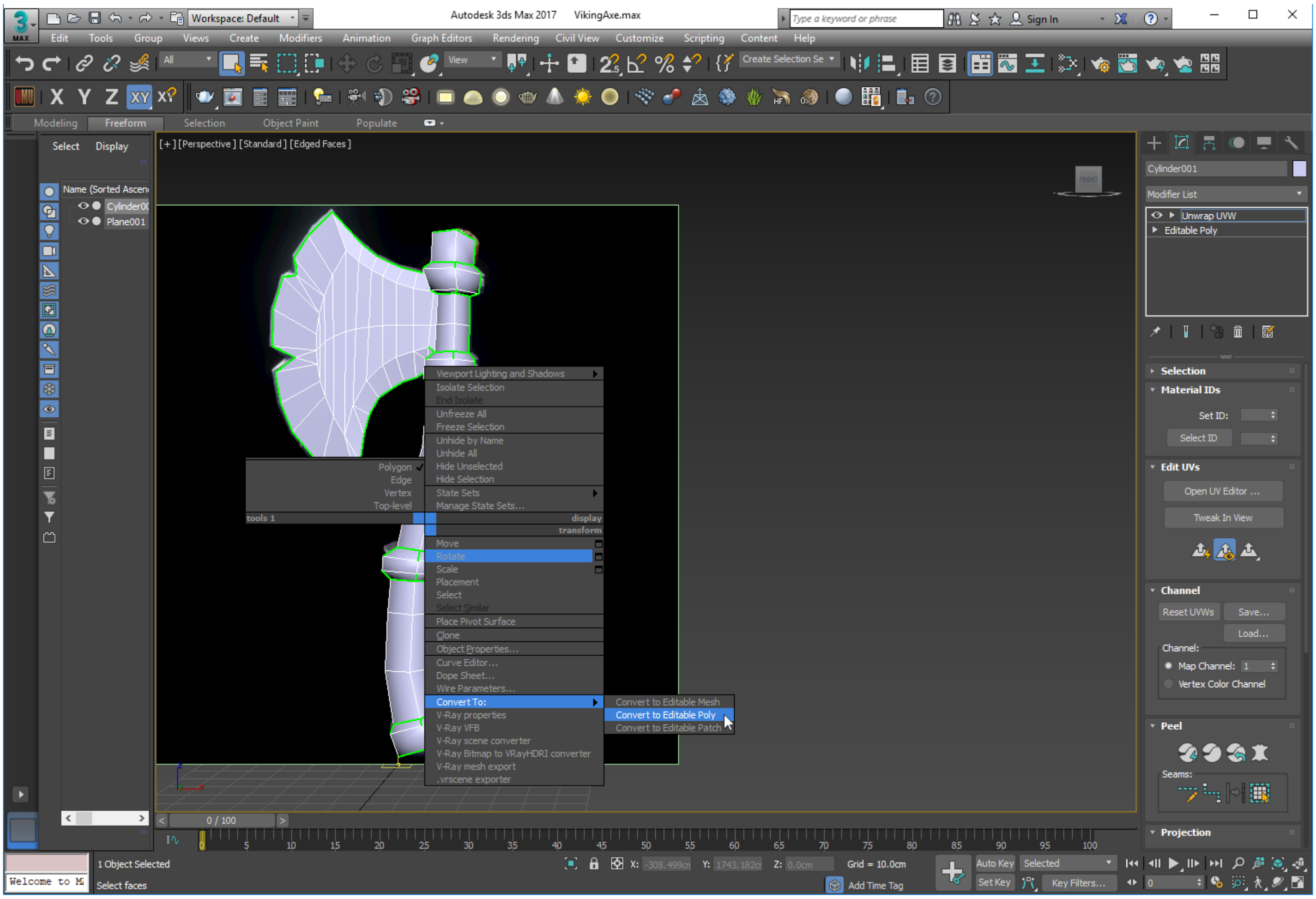
Modifier List → Unwrap UVW



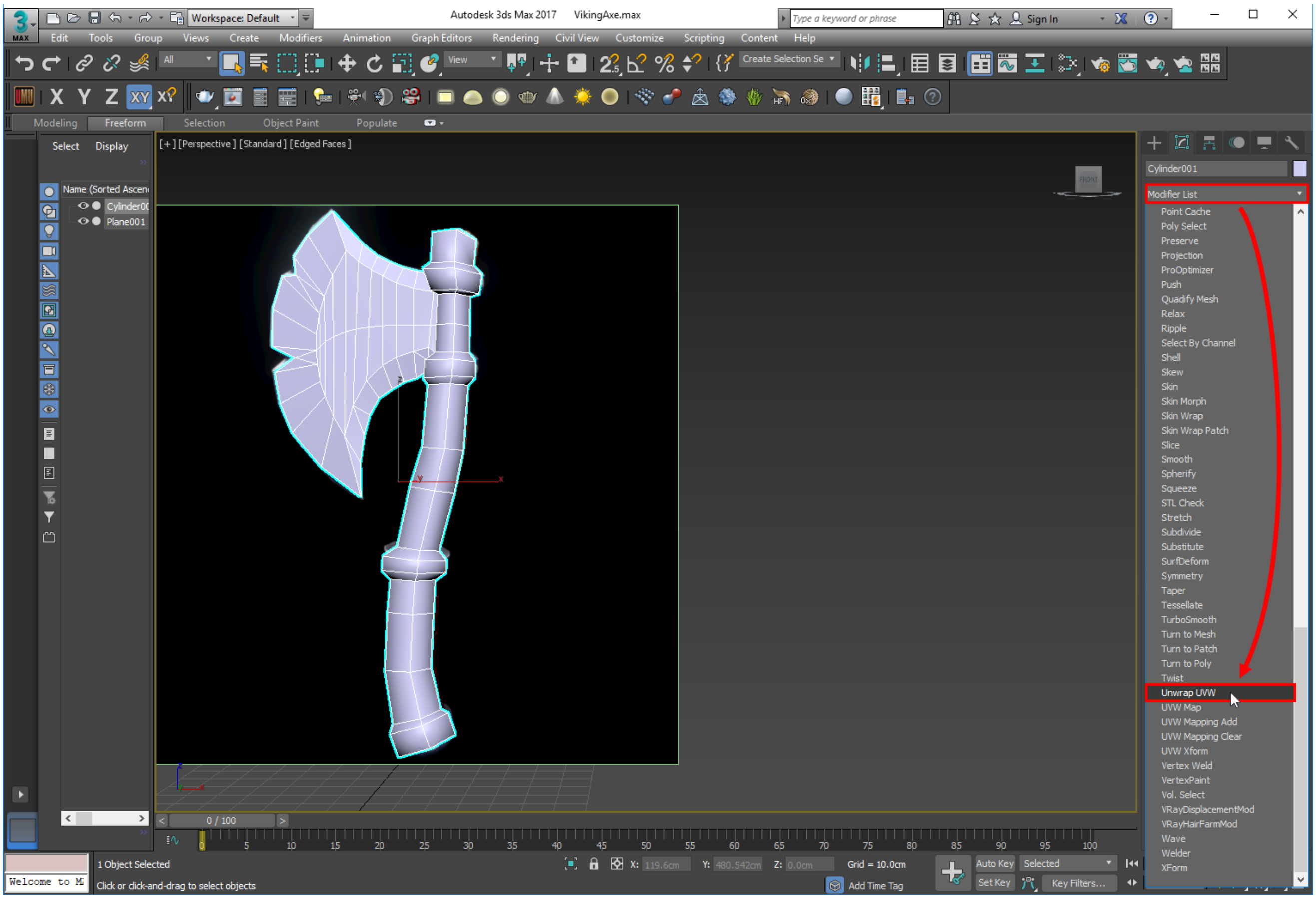
Open UV Editor and unwrap uv. Here is the example after unwrapping



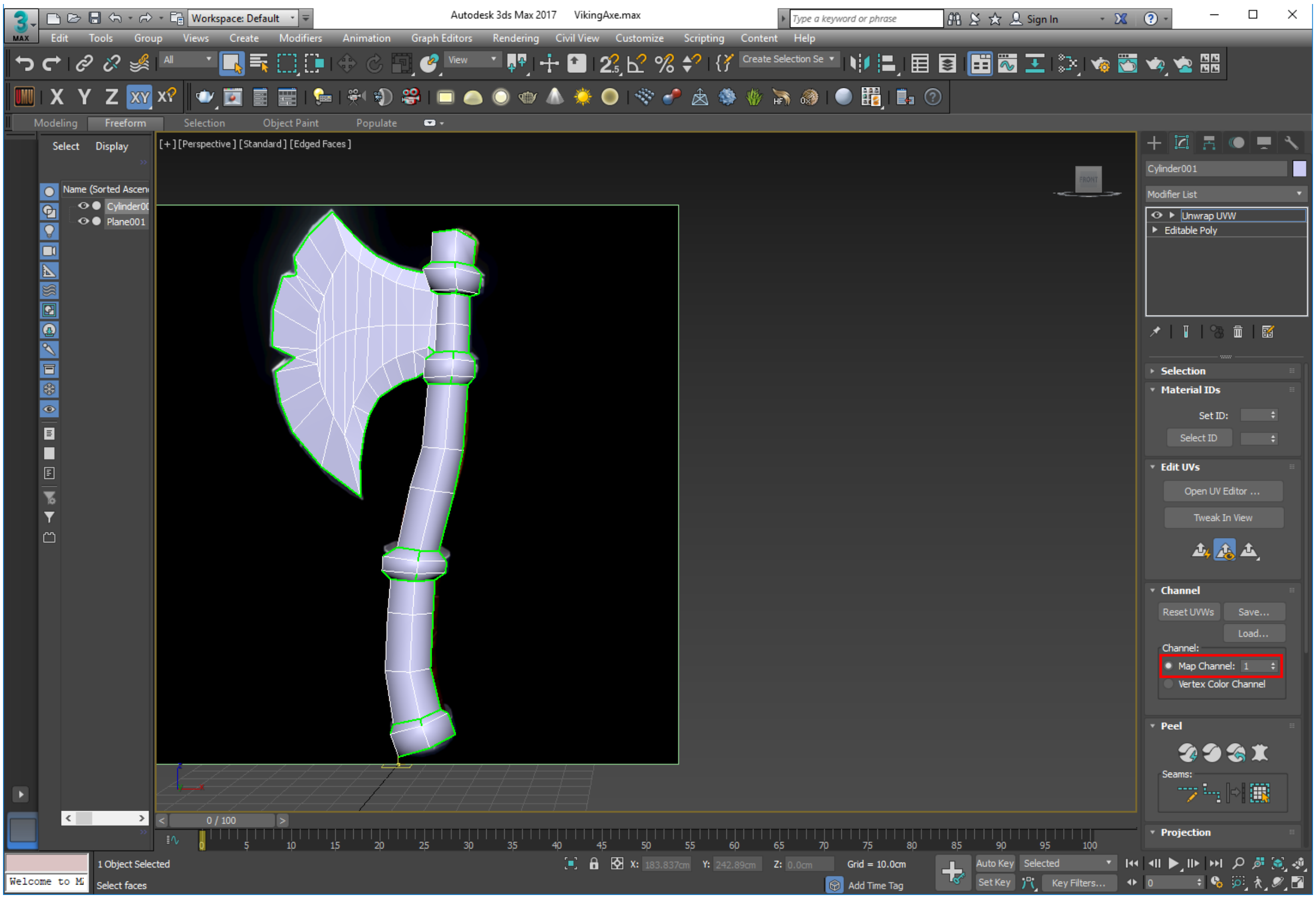
Right click and click Convert to Editable Poly, and saving map channel 1 (or UV 1)



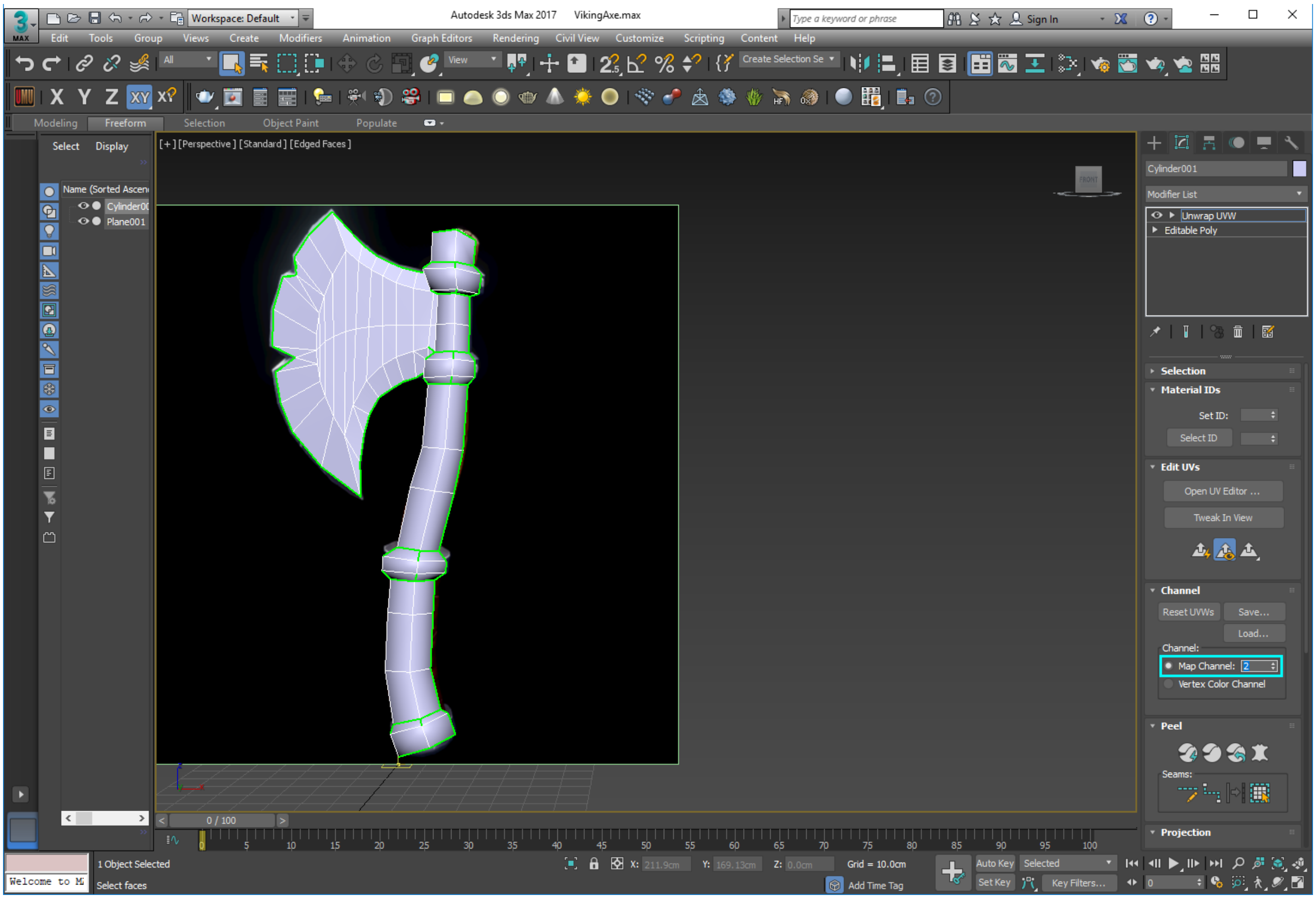
Again, click Modifier List → Unwrap UVW (for map channel 2)



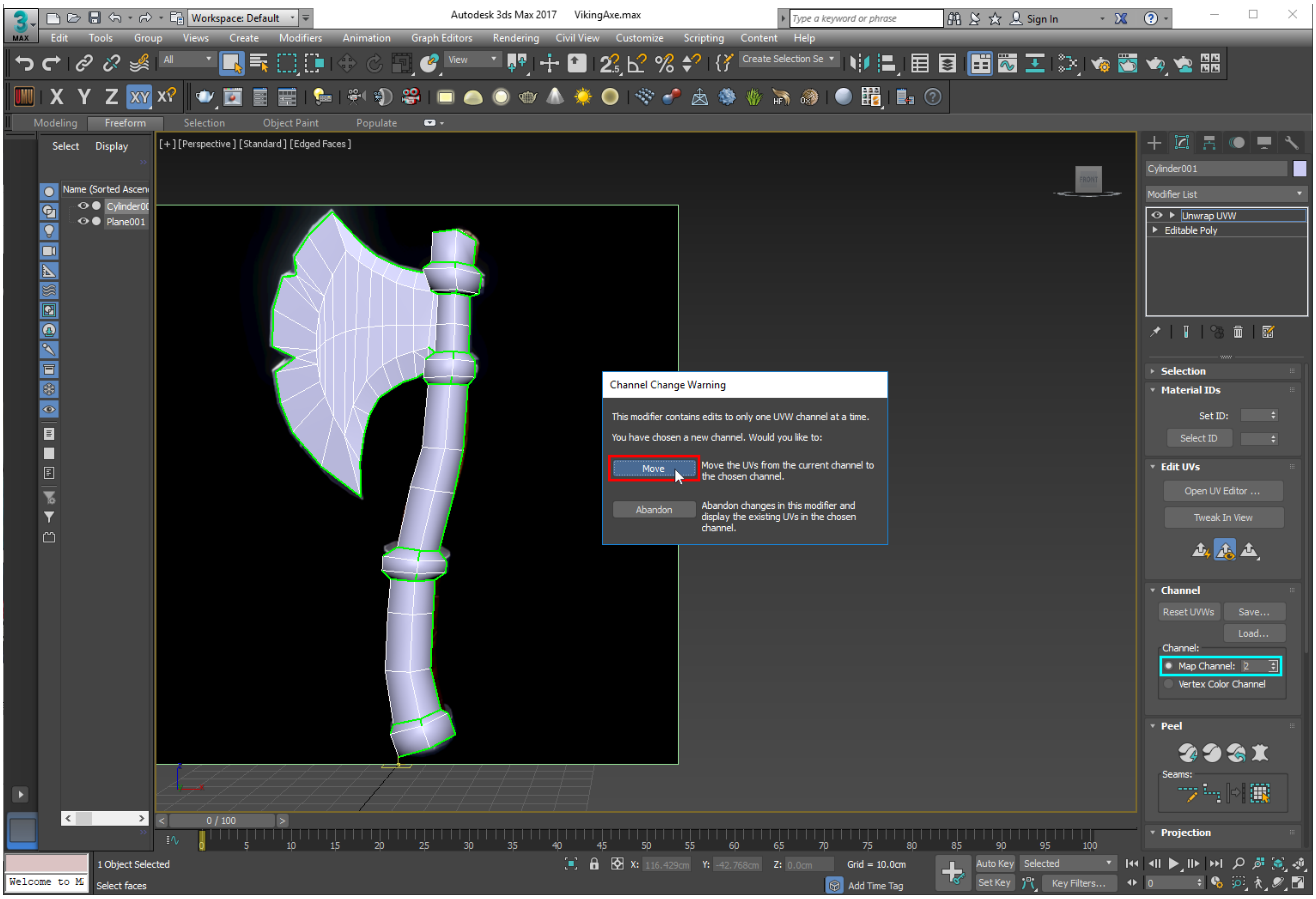
On right side, edit the Map Channel 1 → 2



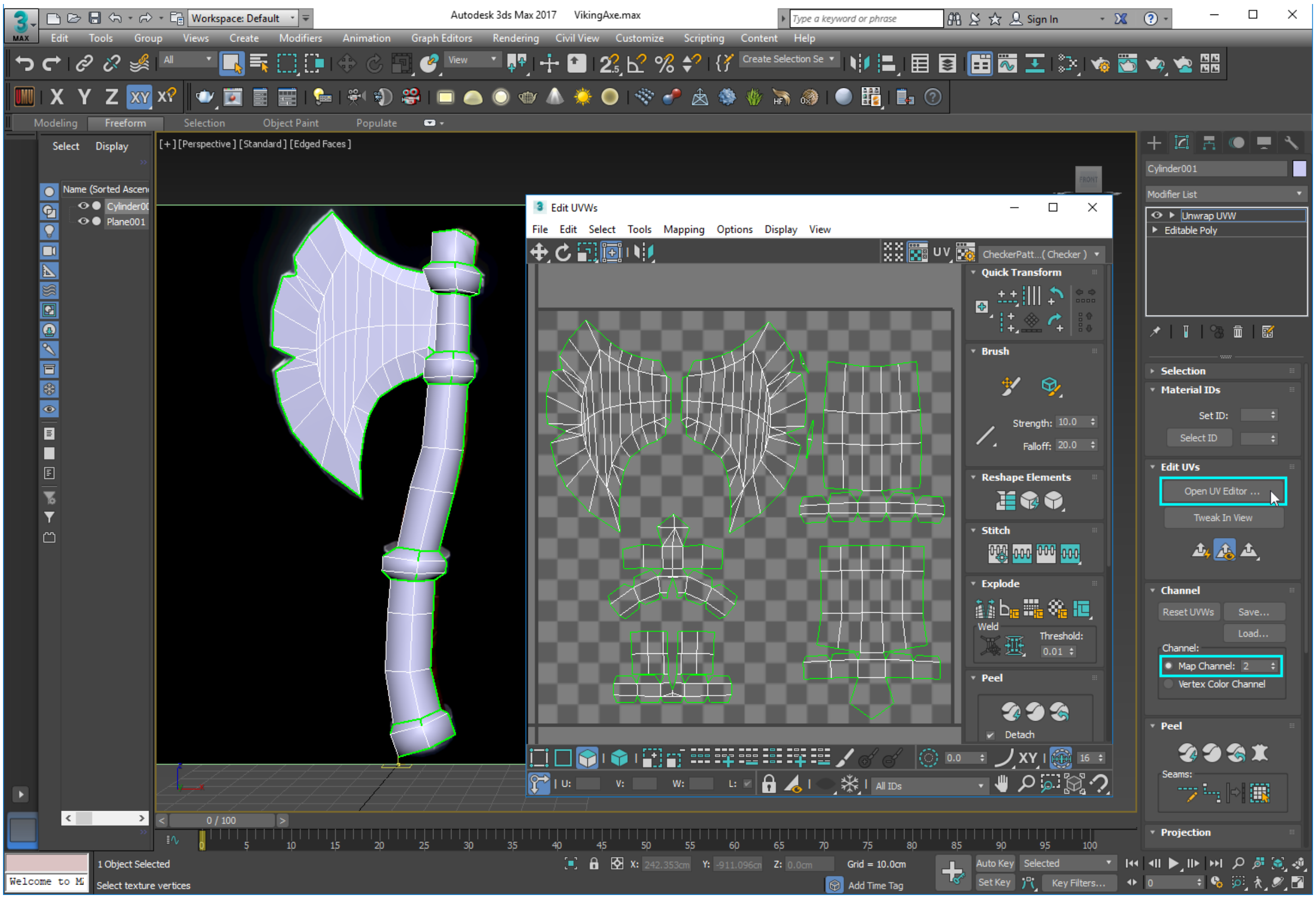
Map Channel 1 → 2



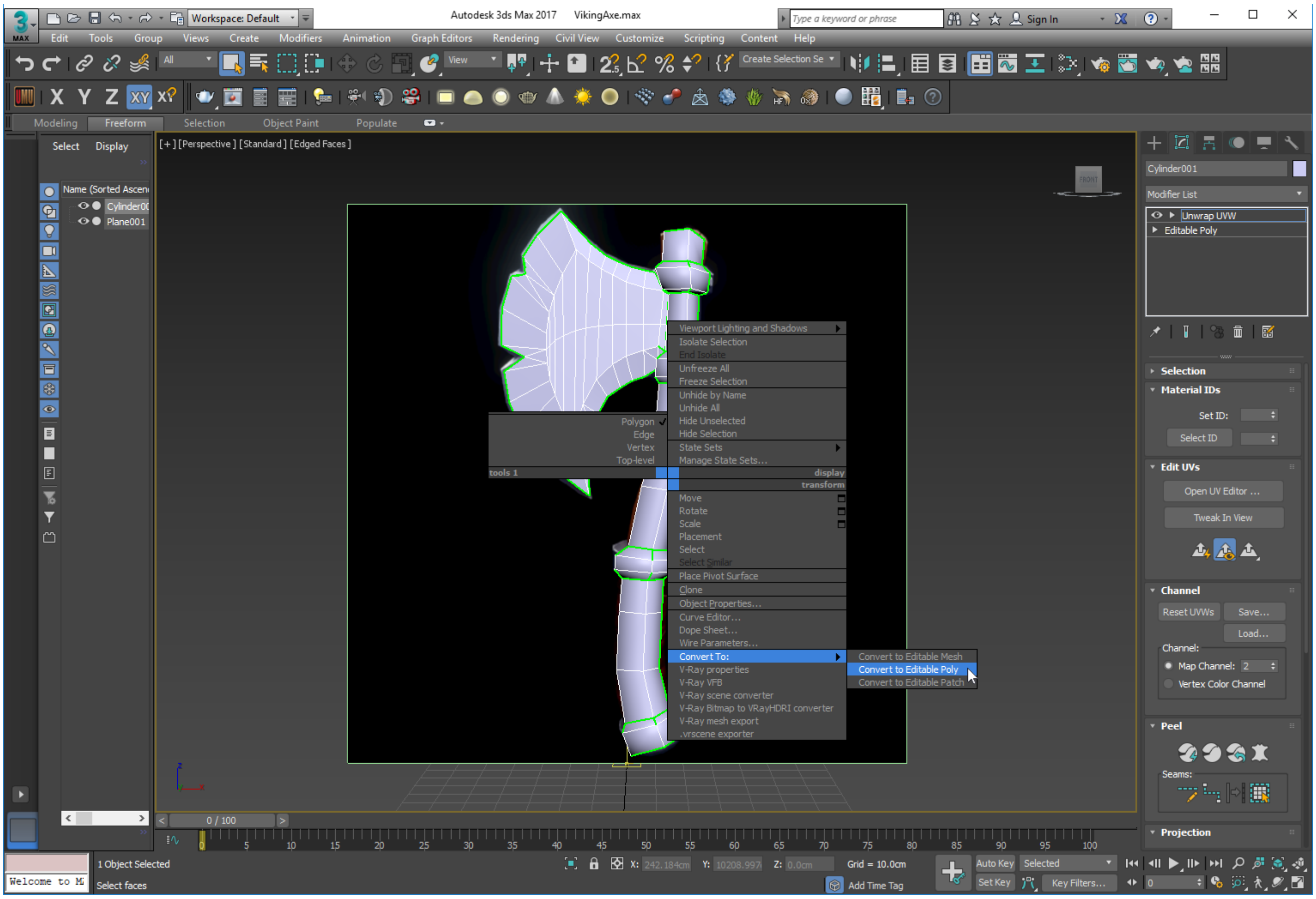
“Channel Change Warning” message appear, click “Move”



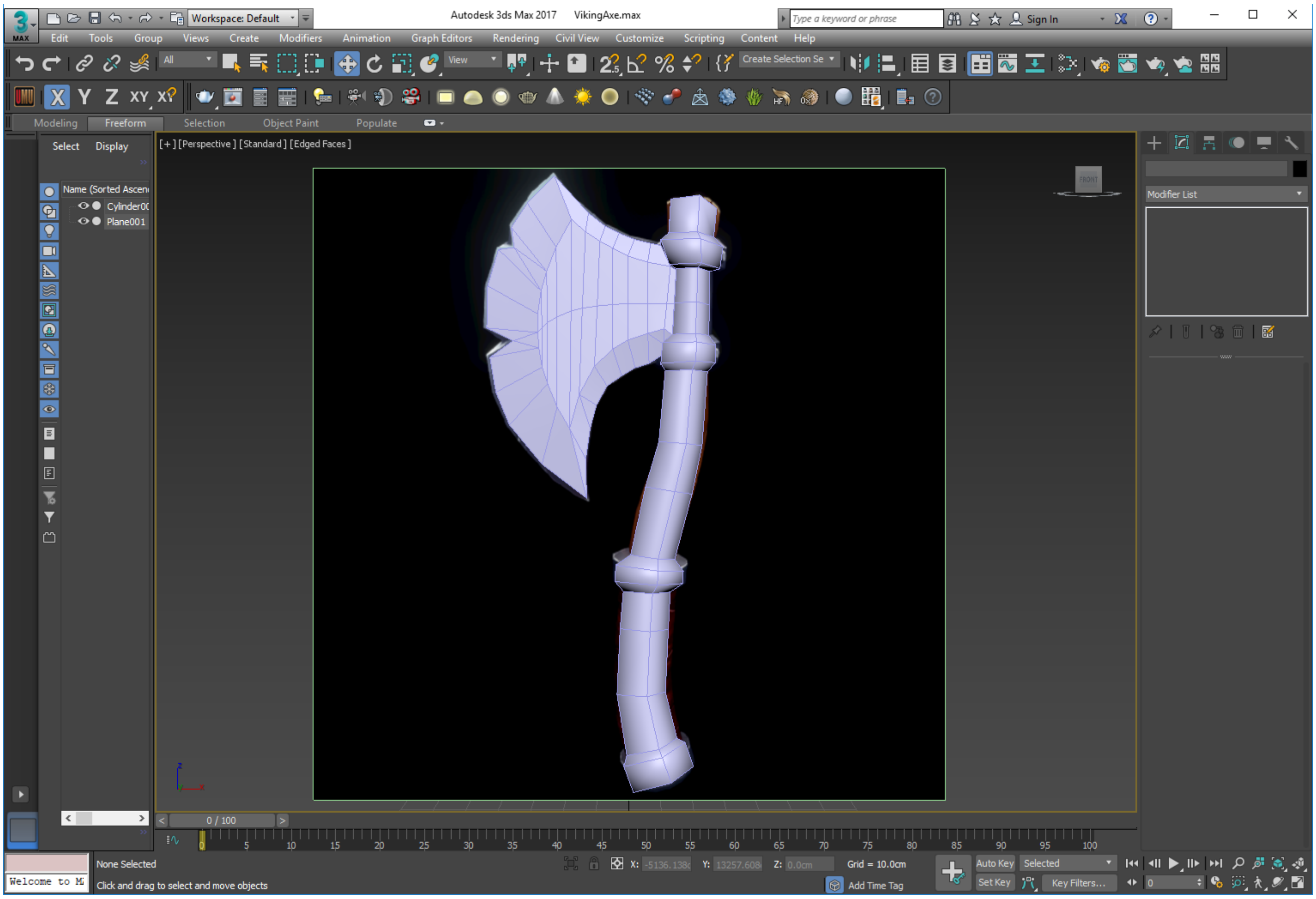
After click“Move”, now UV 1 same as UV 2, so you don’t need waste time for unwrap uv



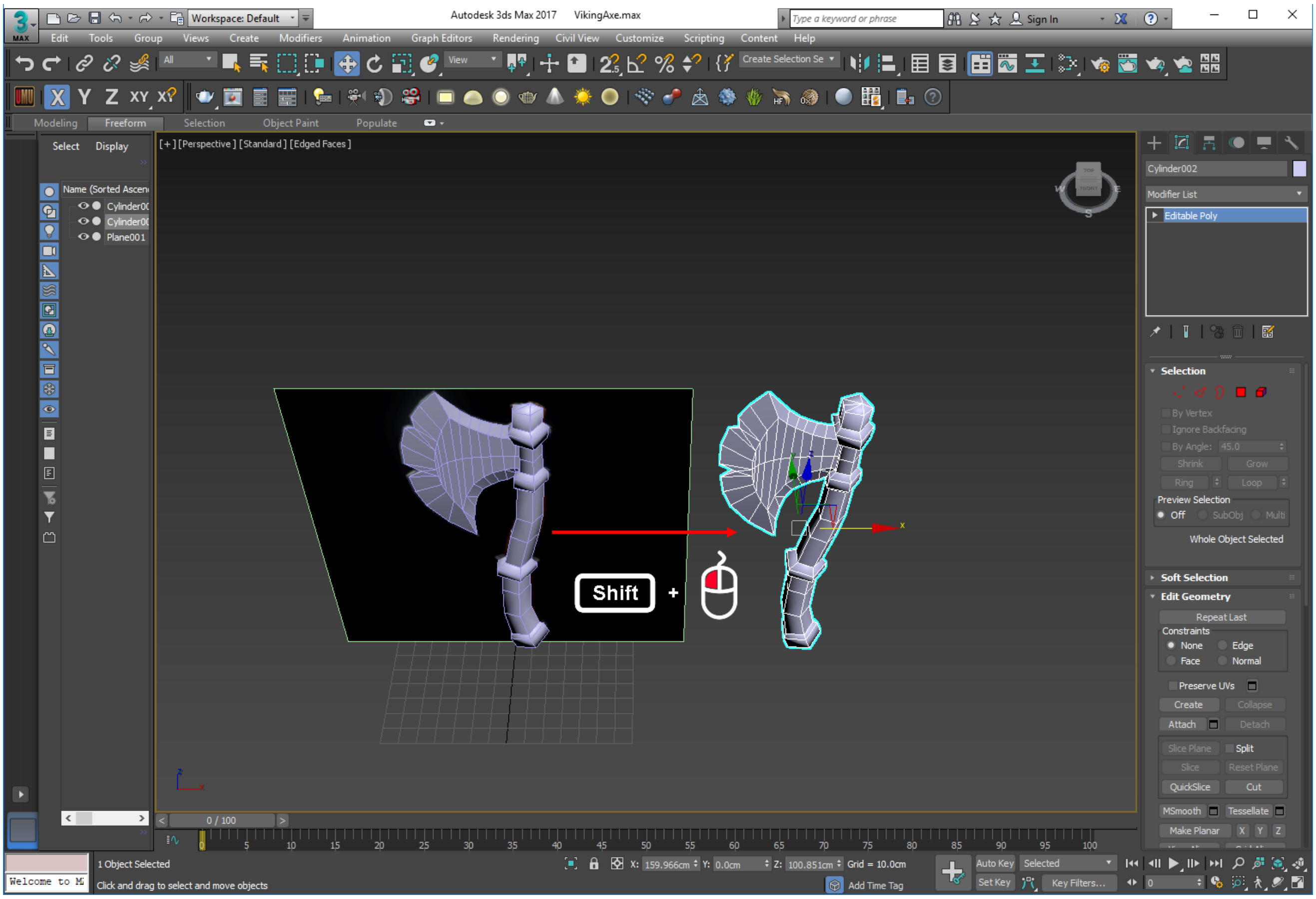
Right click and convert to editable poly, and saving mapping channel 2 (or UV 2)



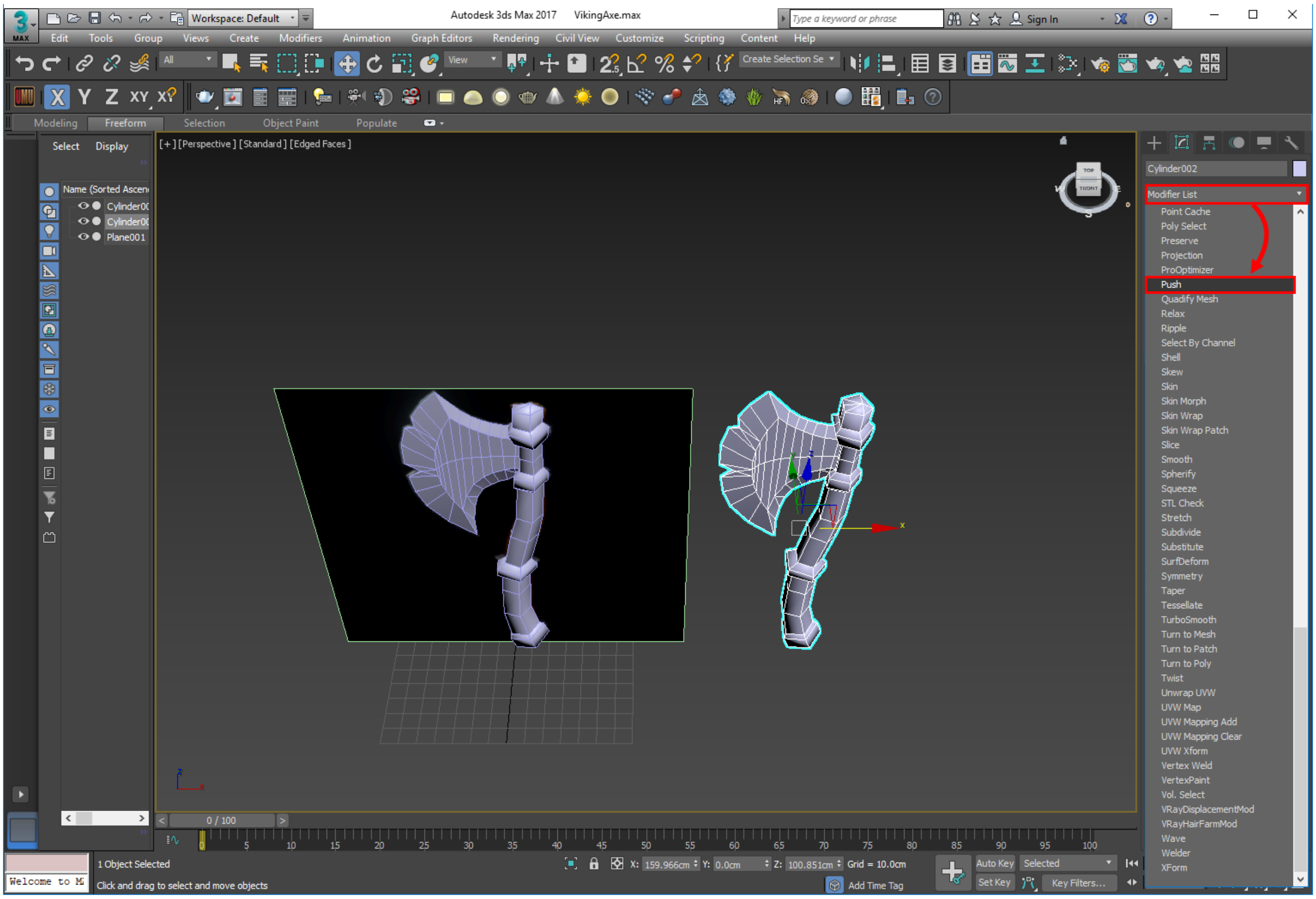
After editable poly, done



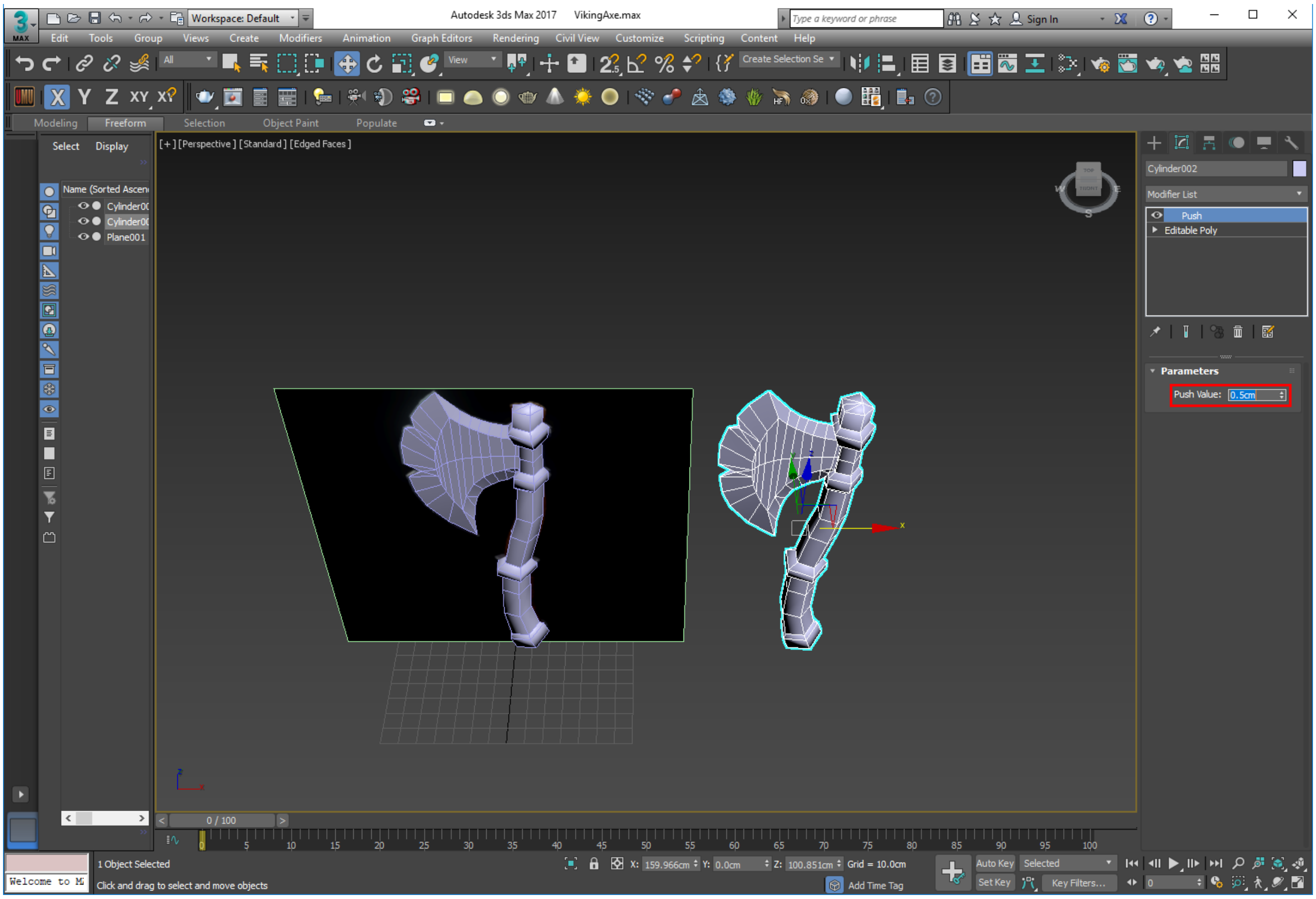
Copy another axe, we need to “Push” before export to ZBrush



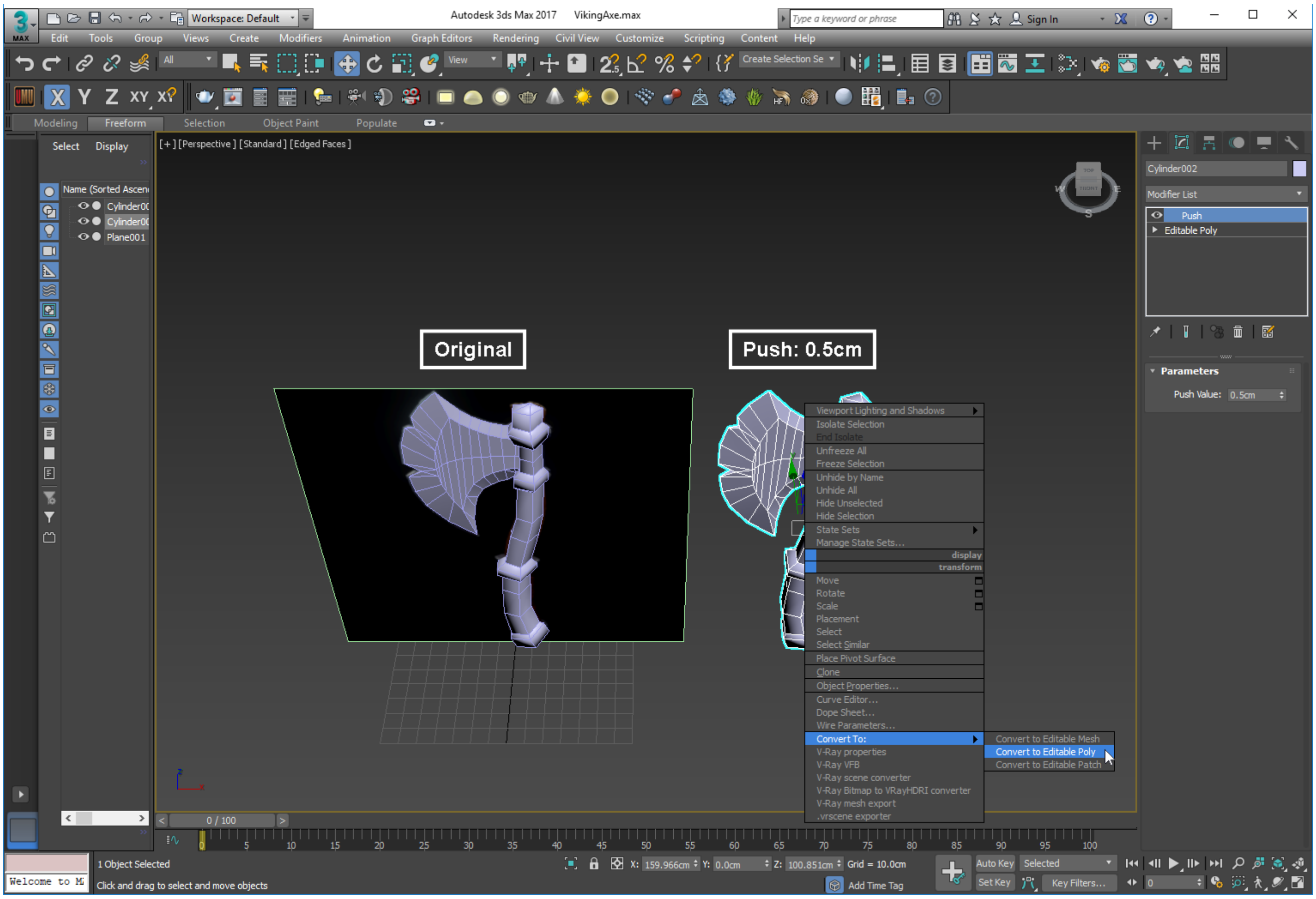
Click Modifier List → Push



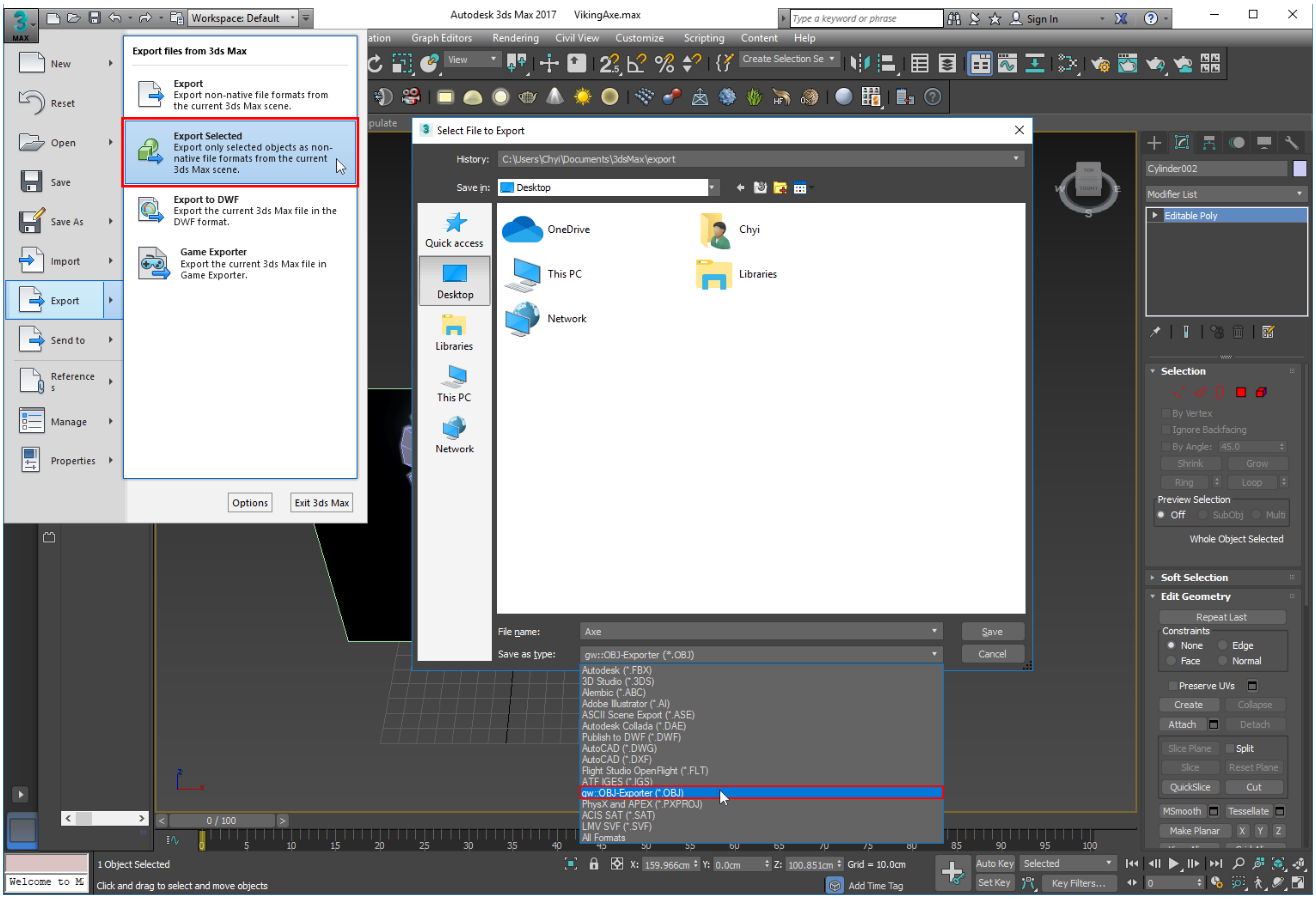
Edit push value: 0.5cm



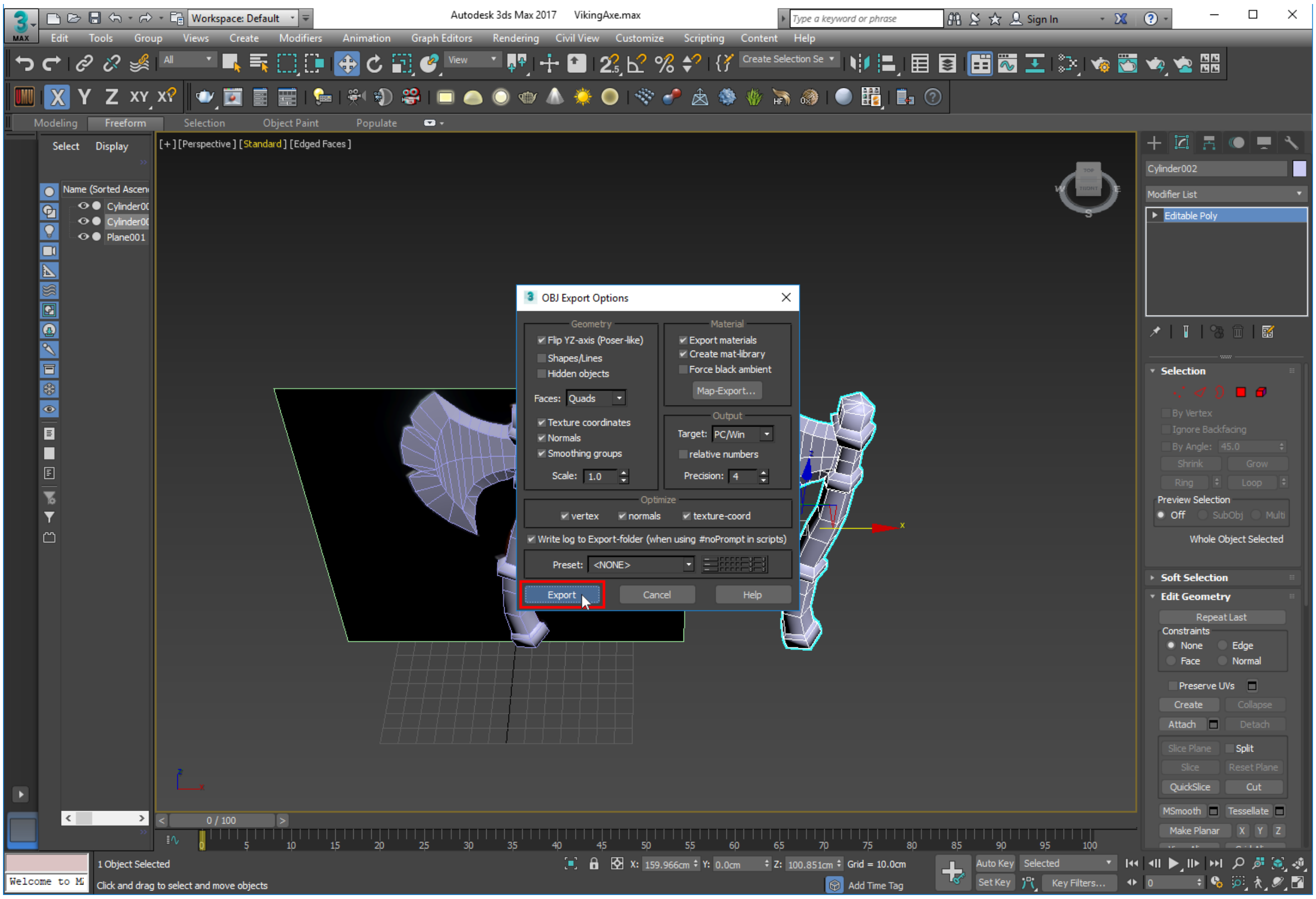
After push, right click and convert to editable poly, we will need to export it



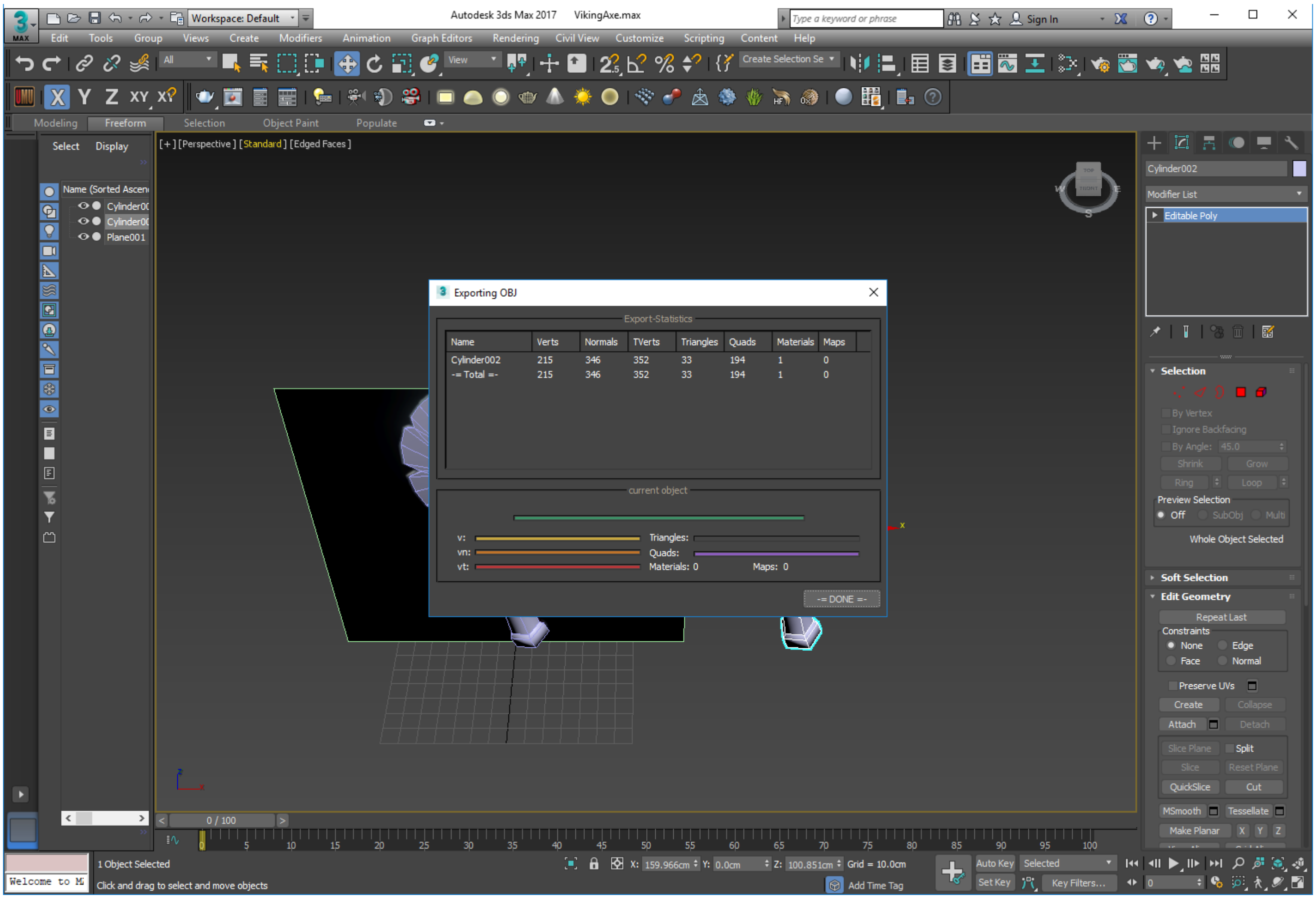
Export → Export Selected (make sure save as .obj)



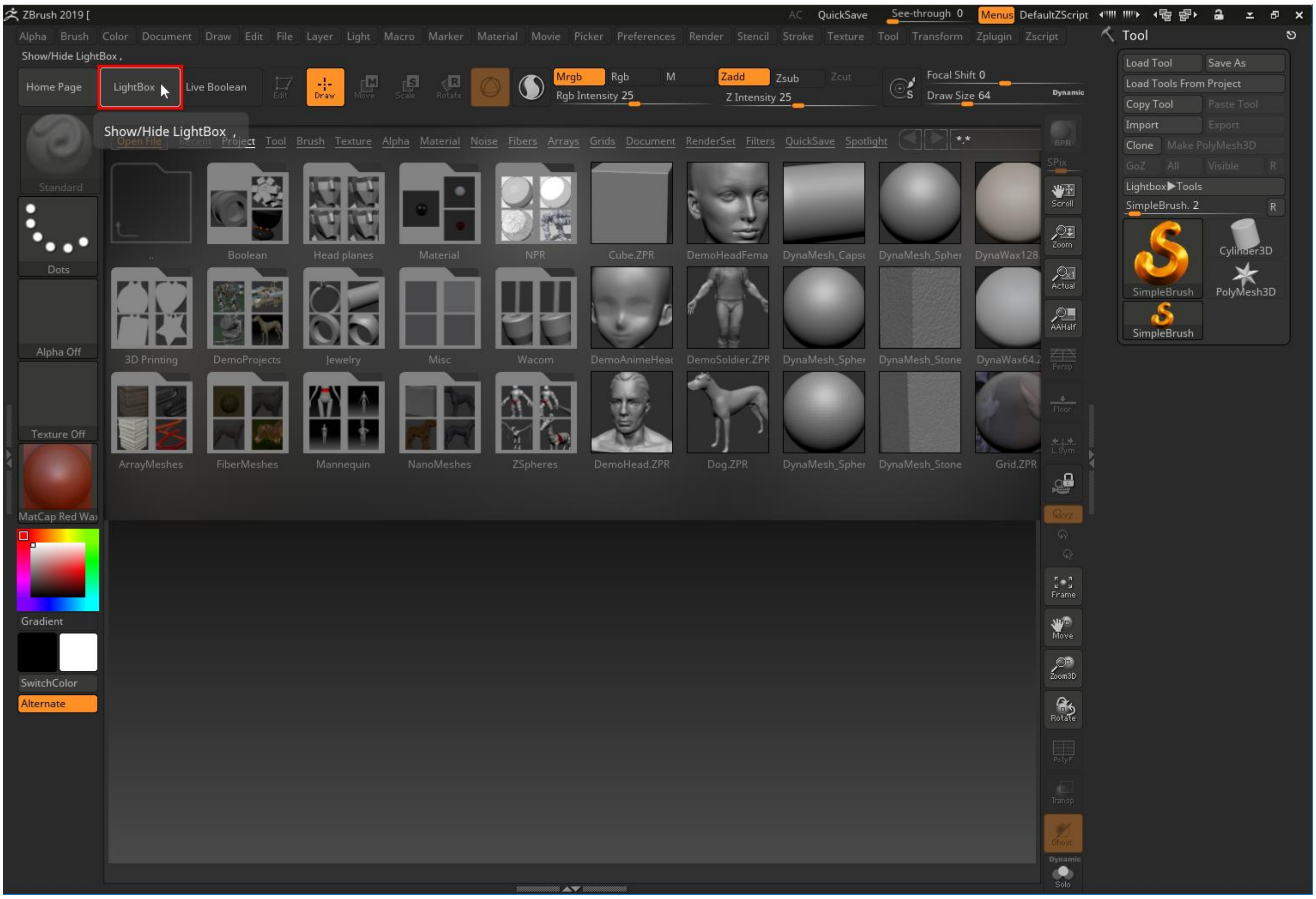
Click “Export”



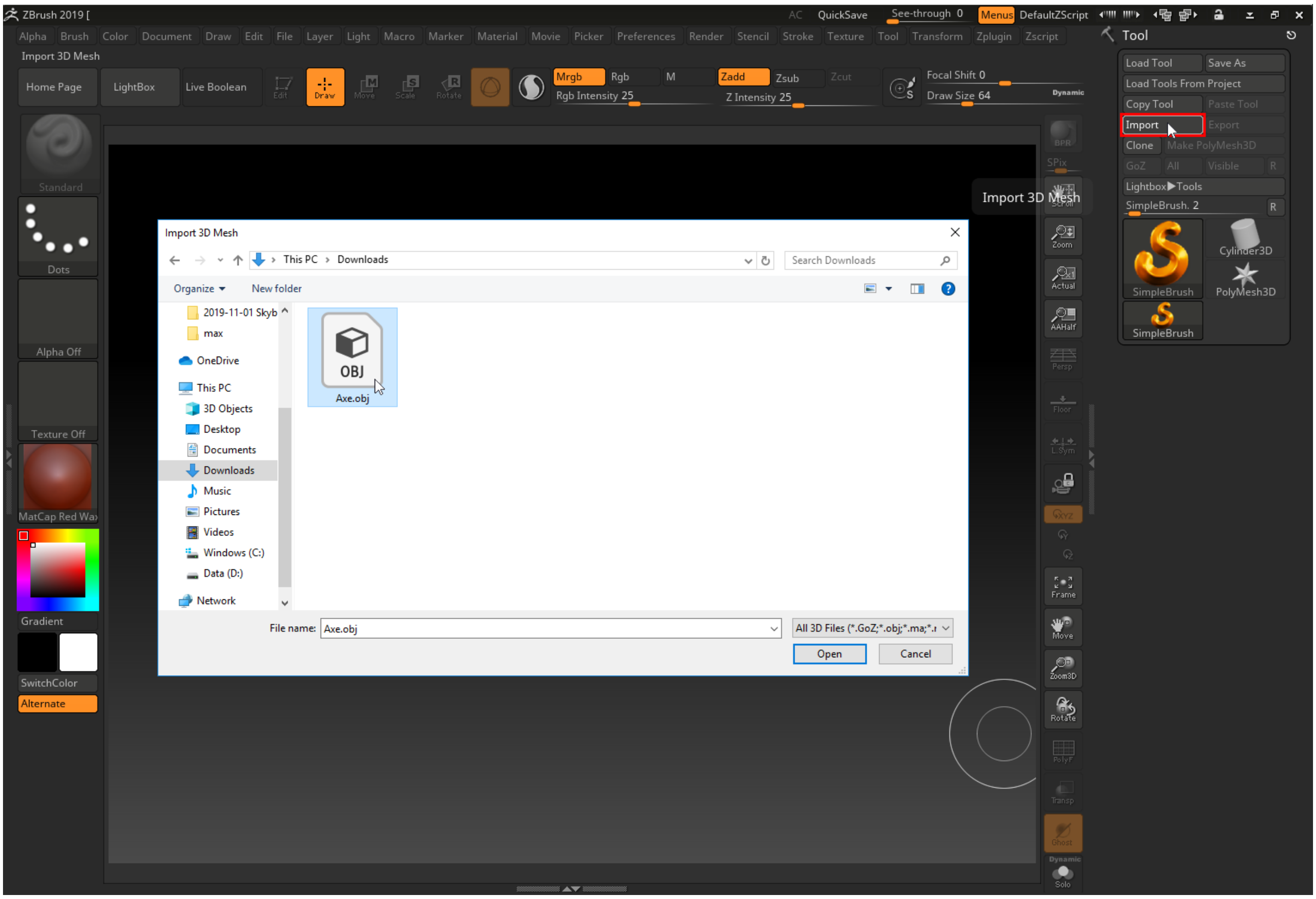
Done, now you can open ZBrush



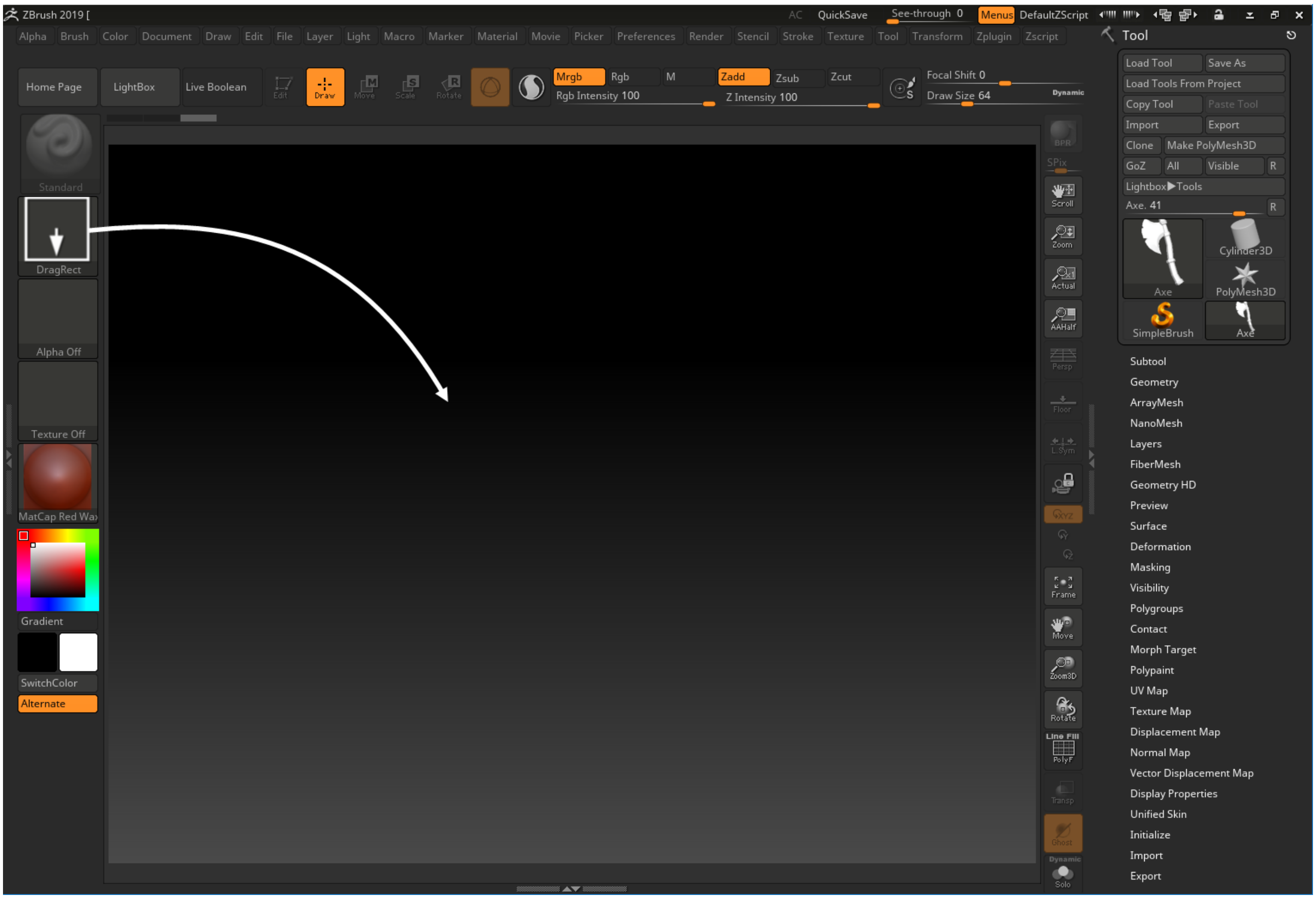
After open ZBrush, hide the “LightBox”



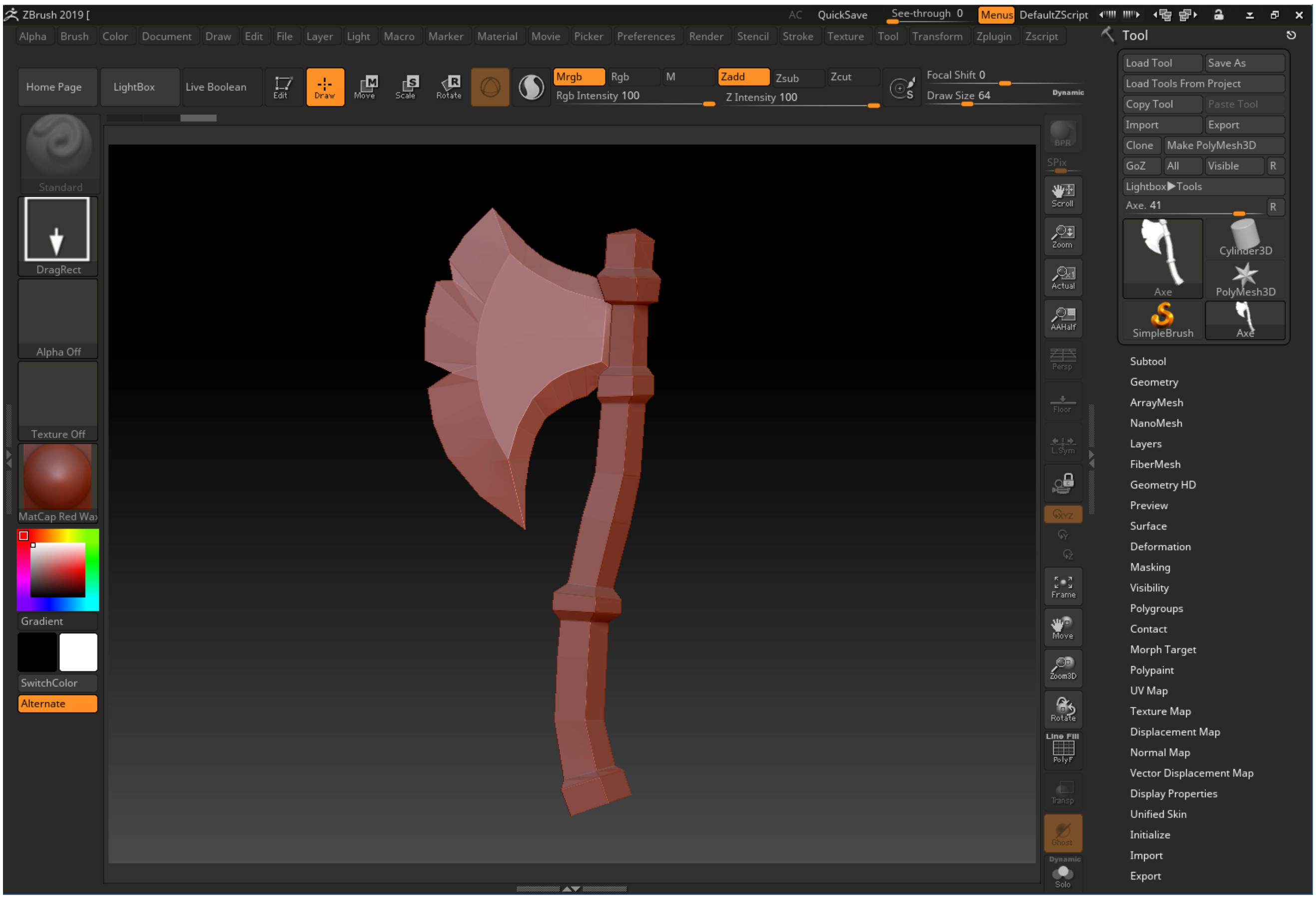
Click “Import” and import obj file



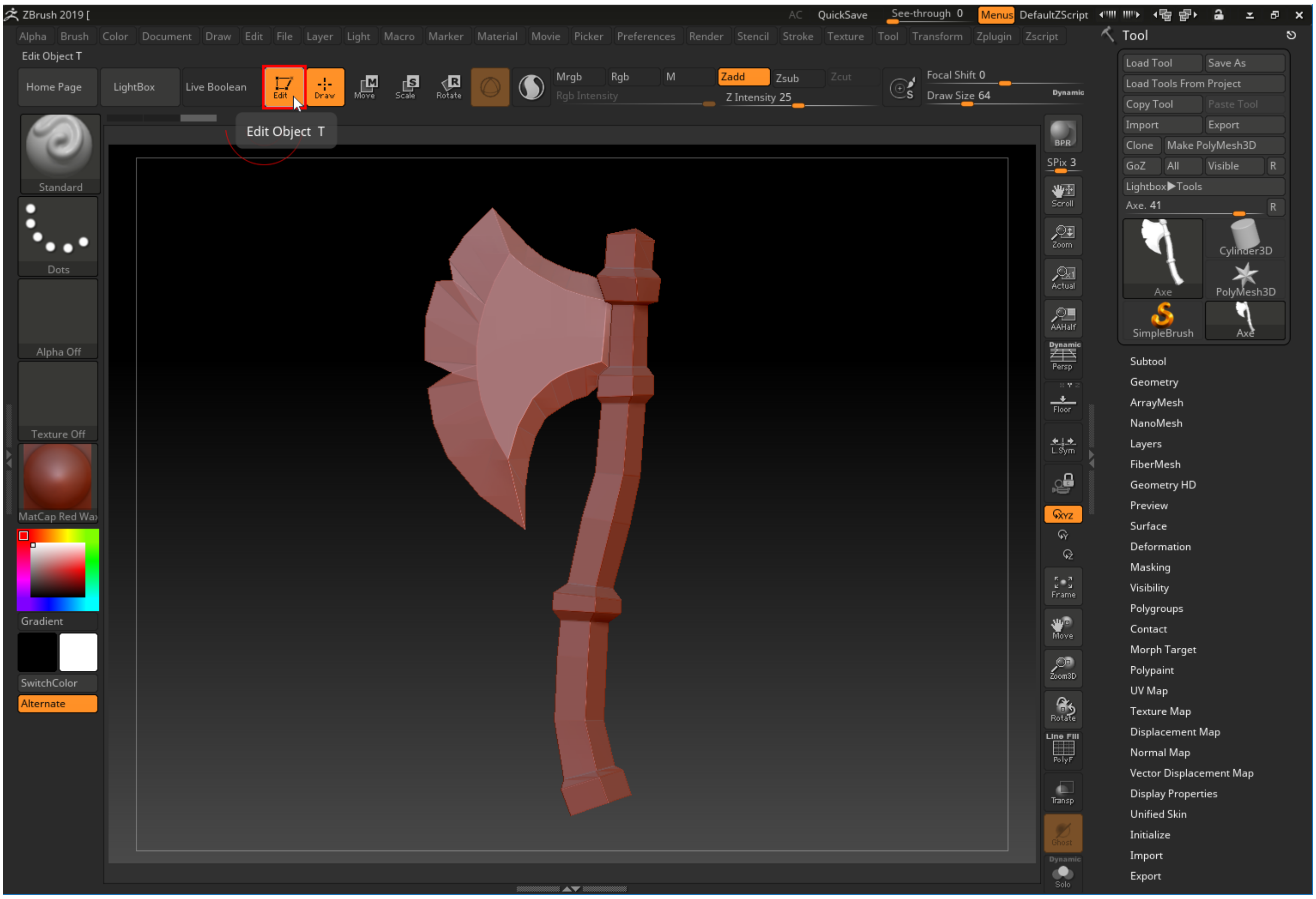
Drag the axe in viewport



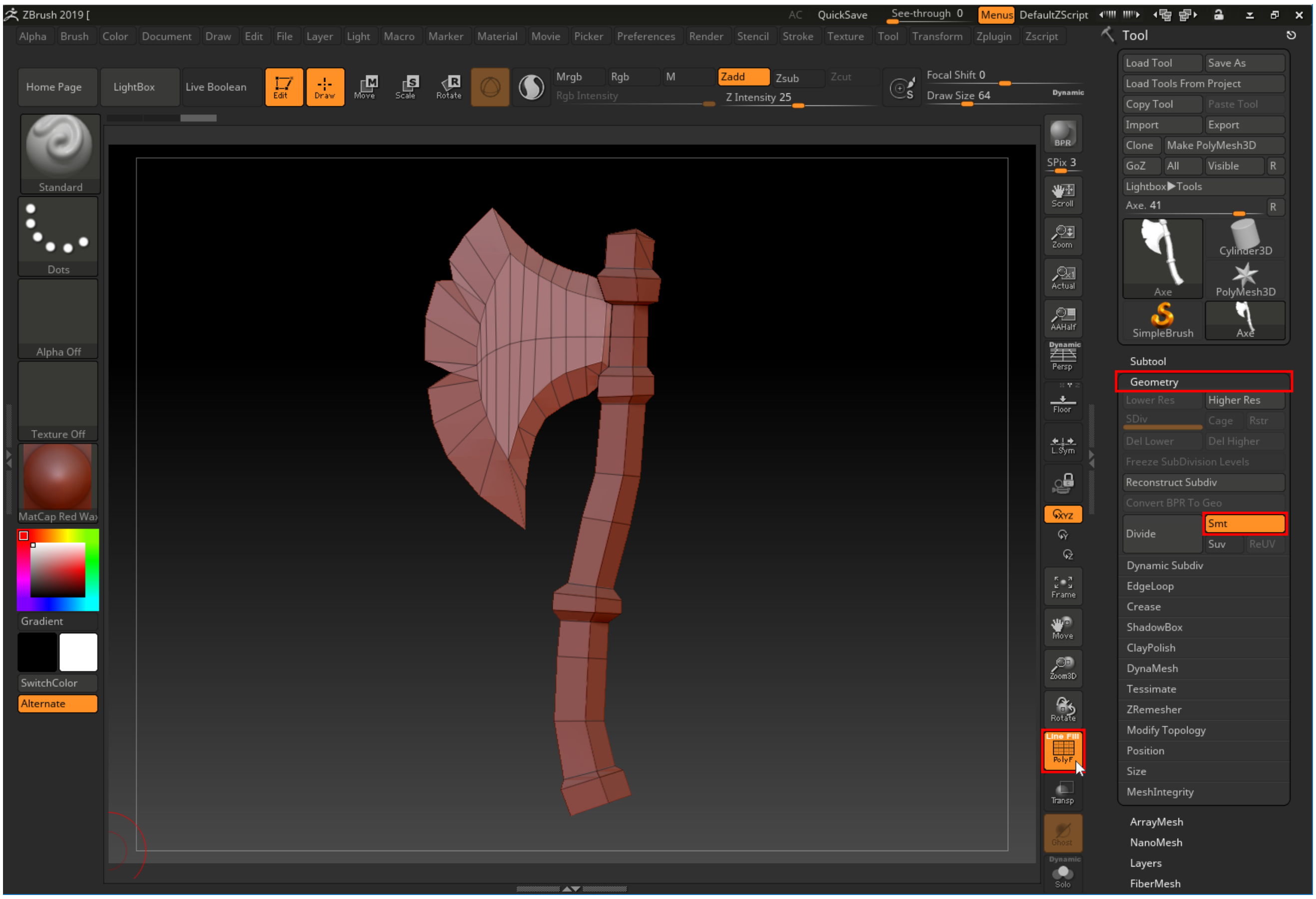
Done



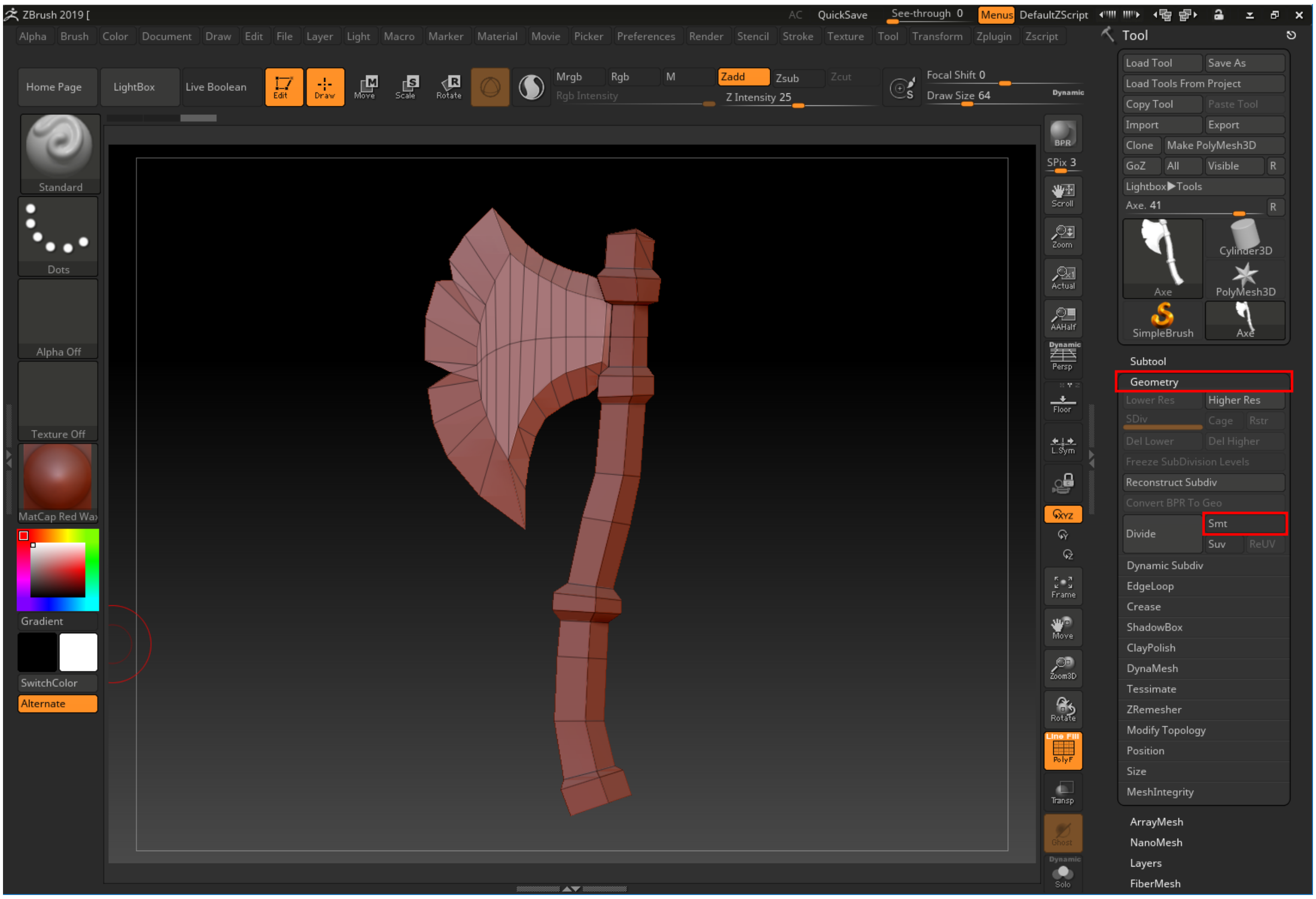
Click "Edit Object"



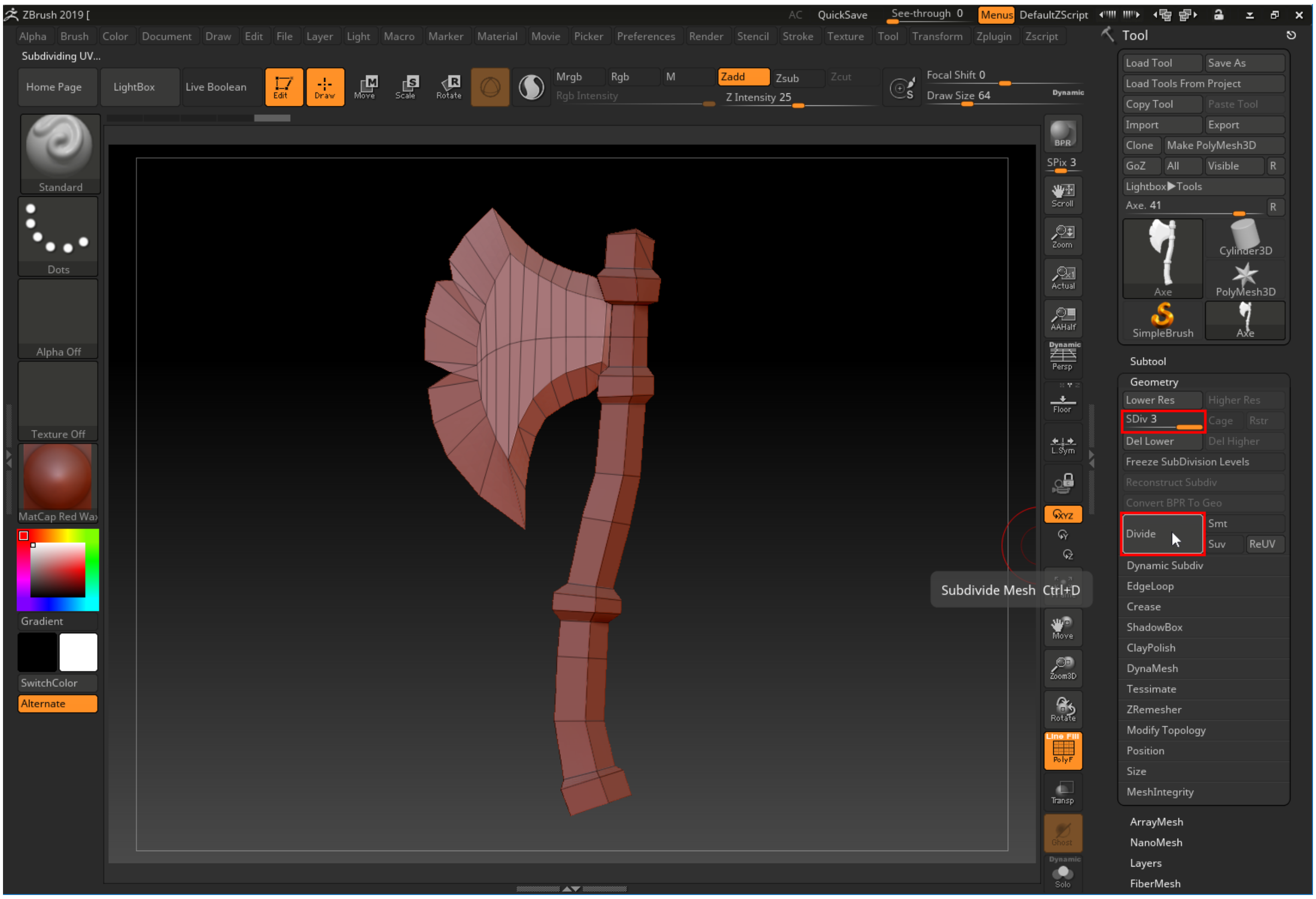
Click "Line Fill" to see lines, and also click "Geometry"



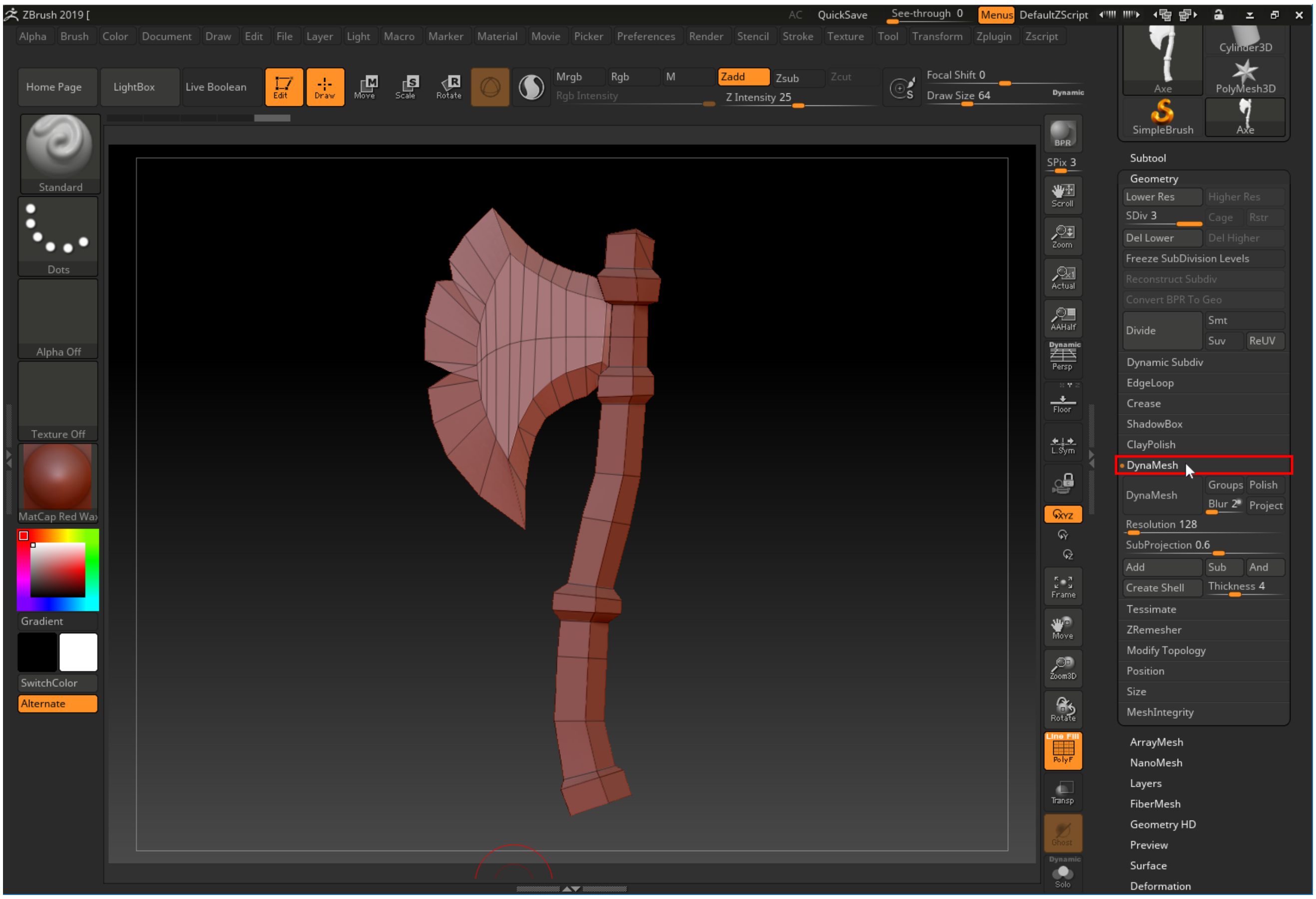
Disable “Smt”



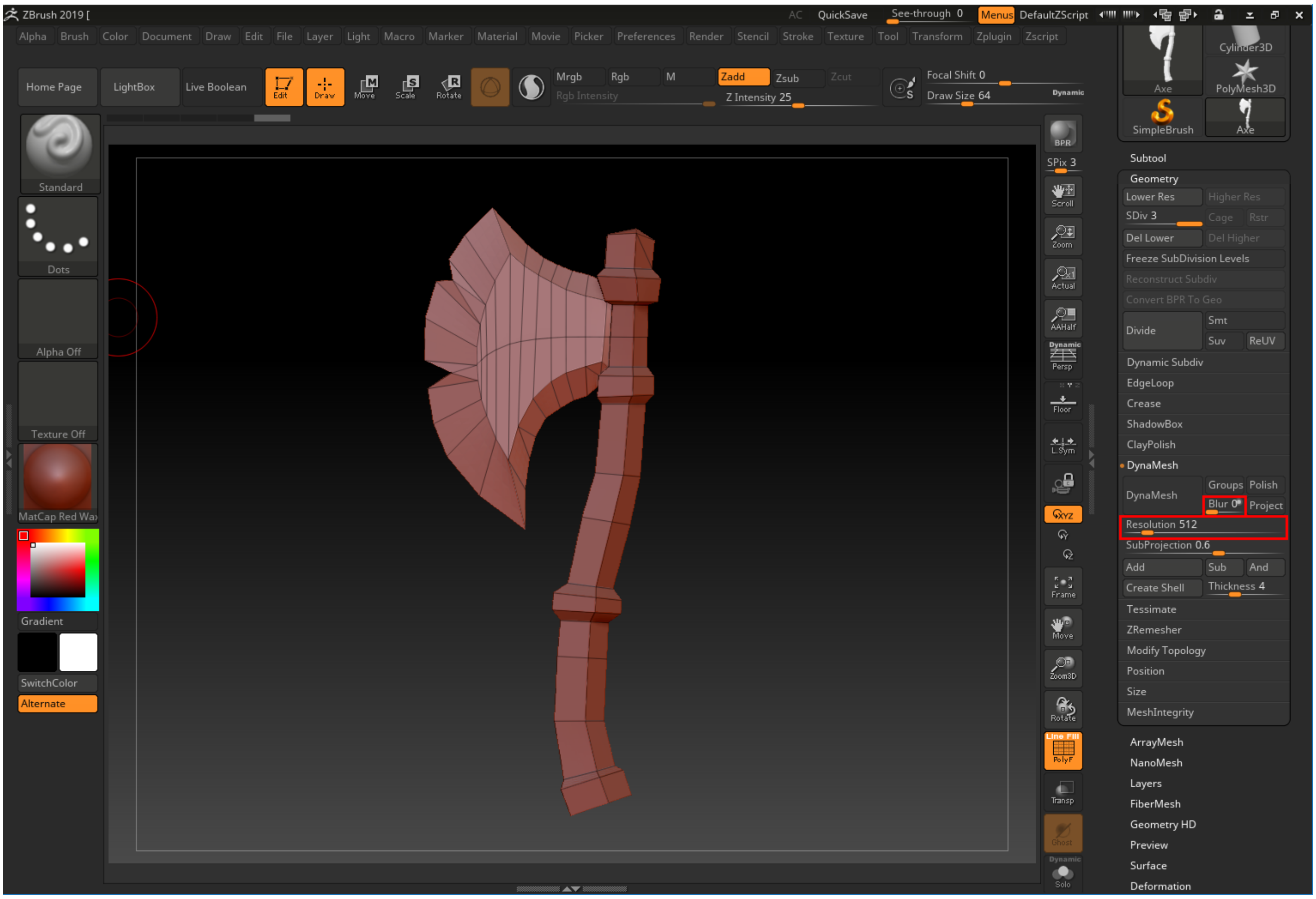
Click “Divide” 2 times (and you will see SDiv 3)



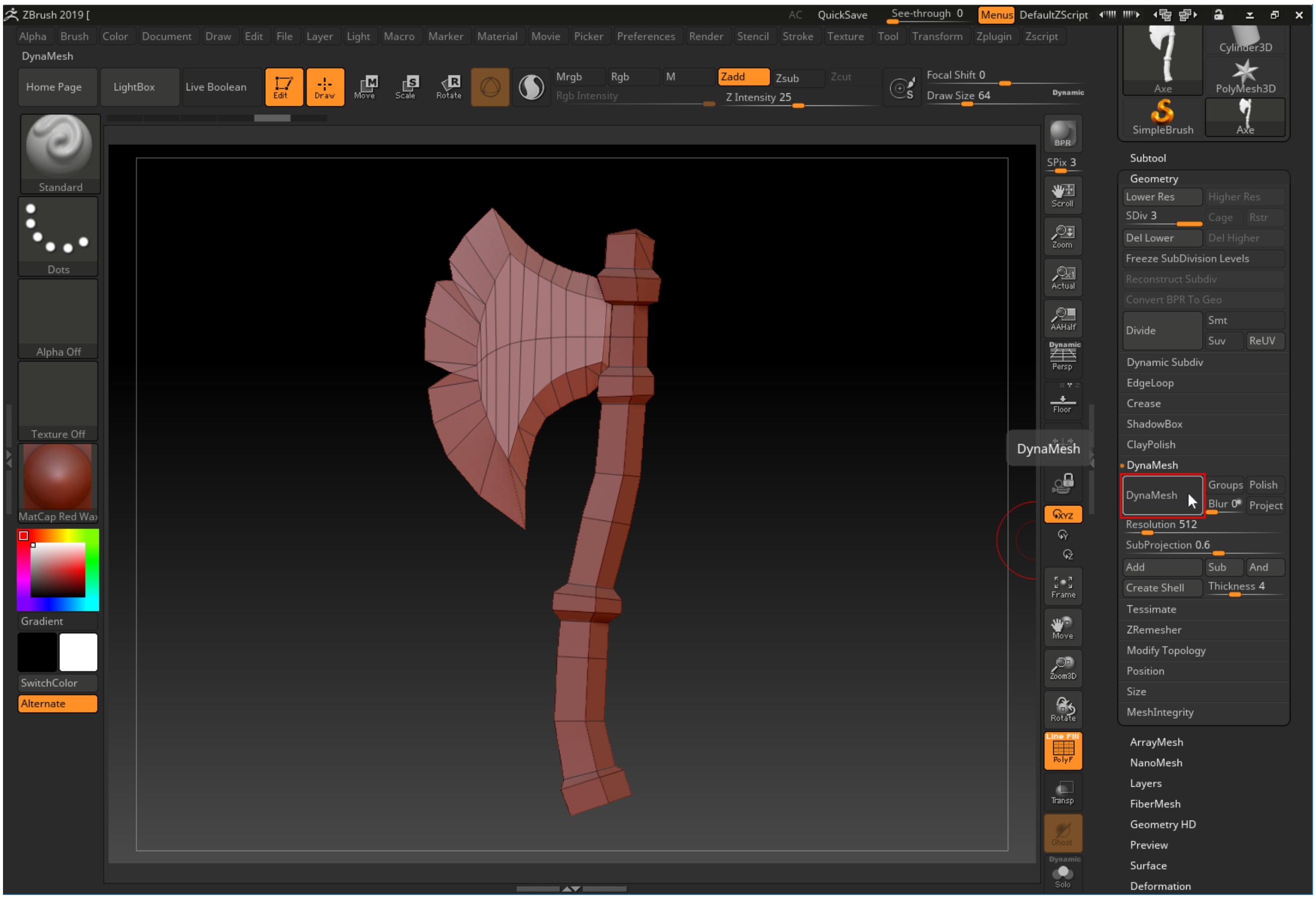
Open “DynaMesh”



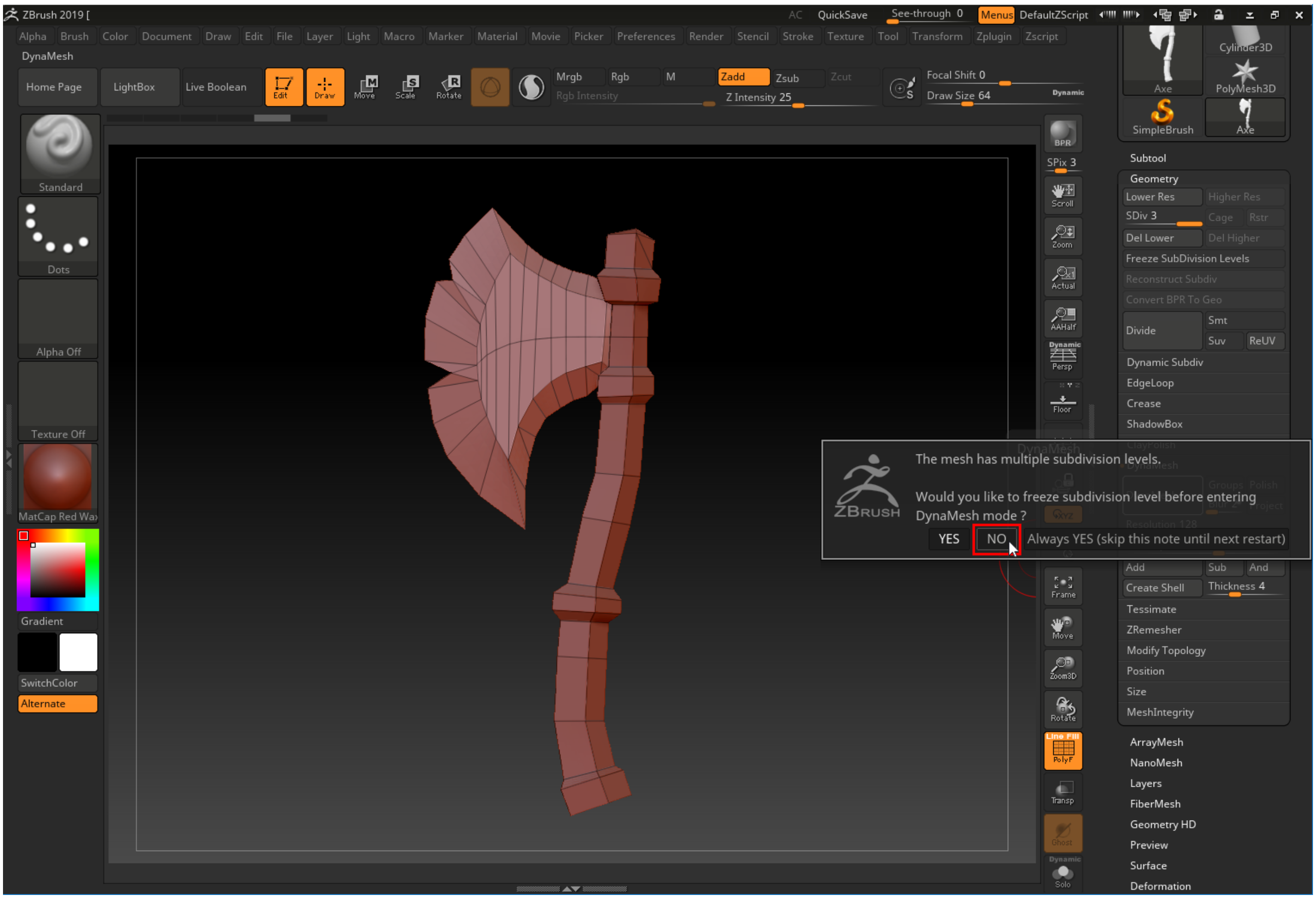
Edit blur 0 and resolution 512 or 1024



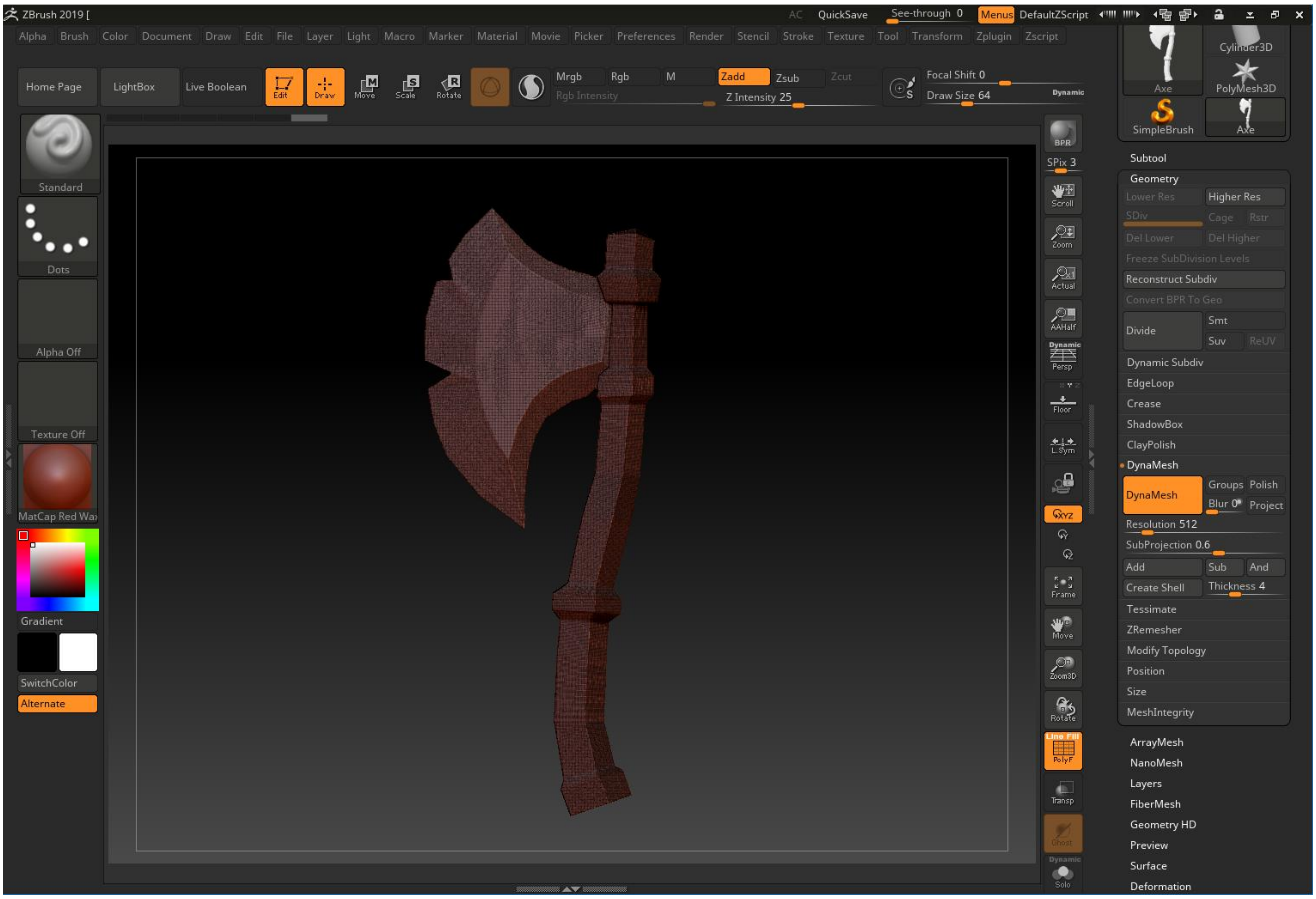
Click “DynaMesh” button



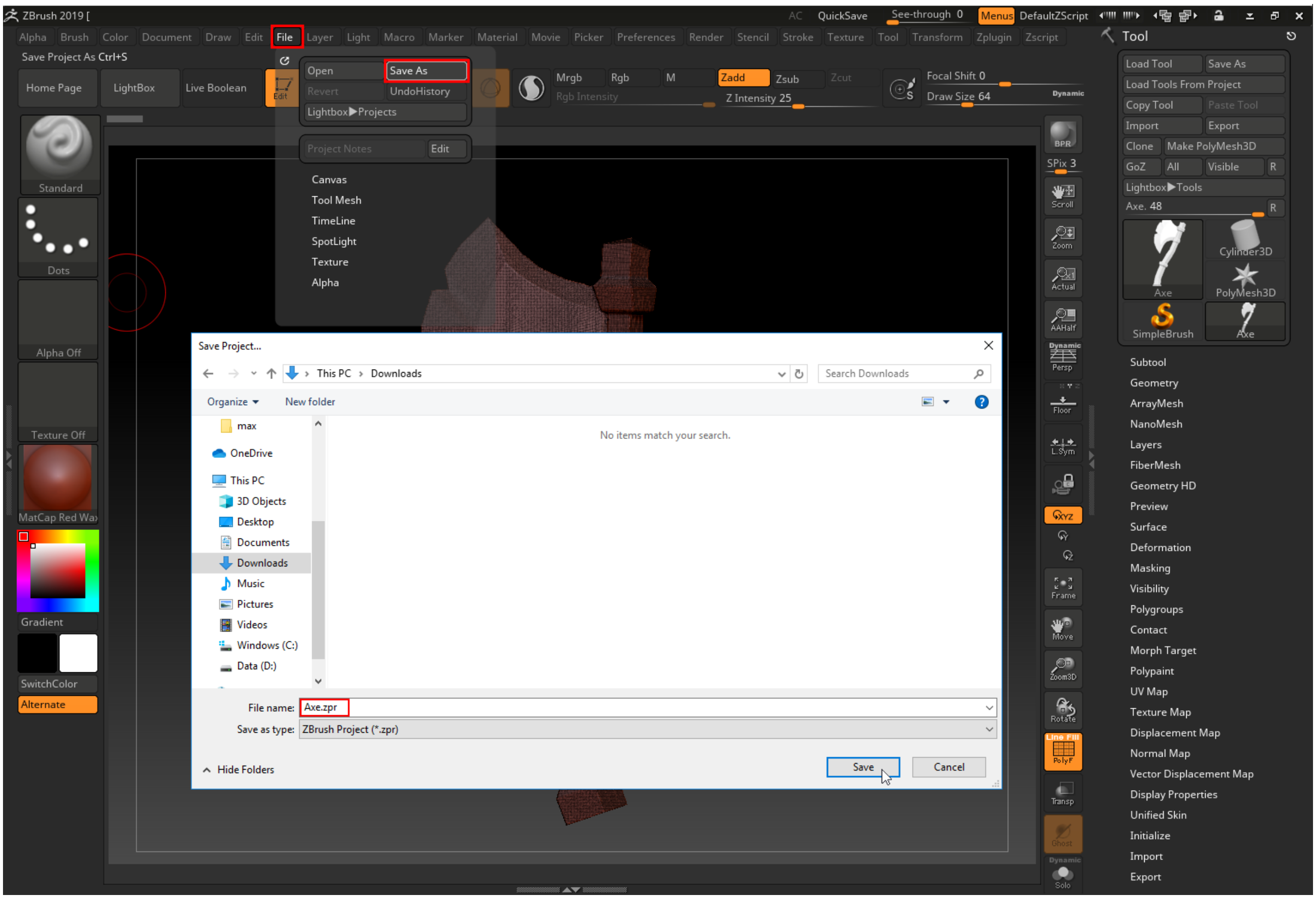
After click “DynaMesh” button, click “NO”



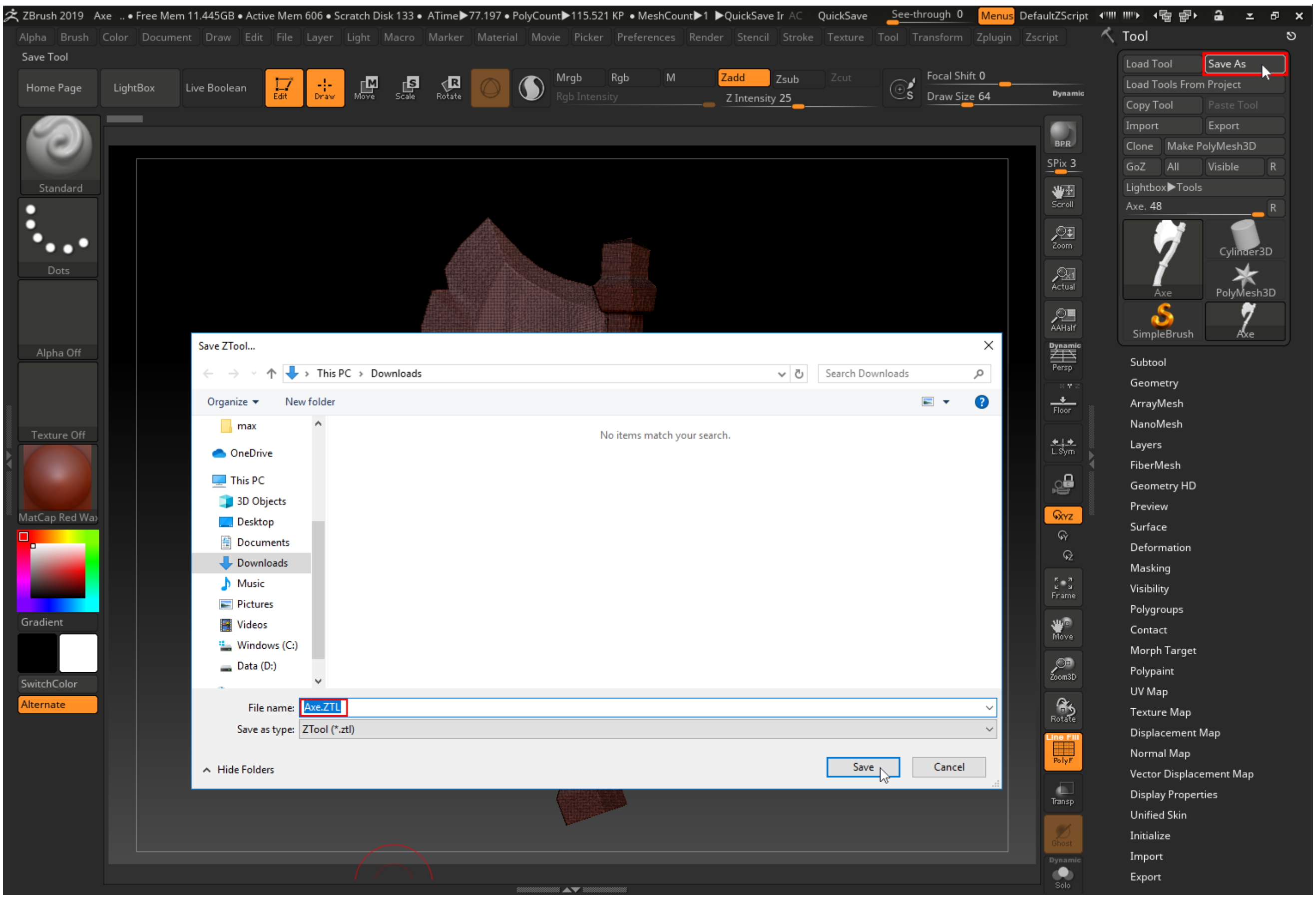
Here is after “DynaMesh”, and you will see a lots of lines



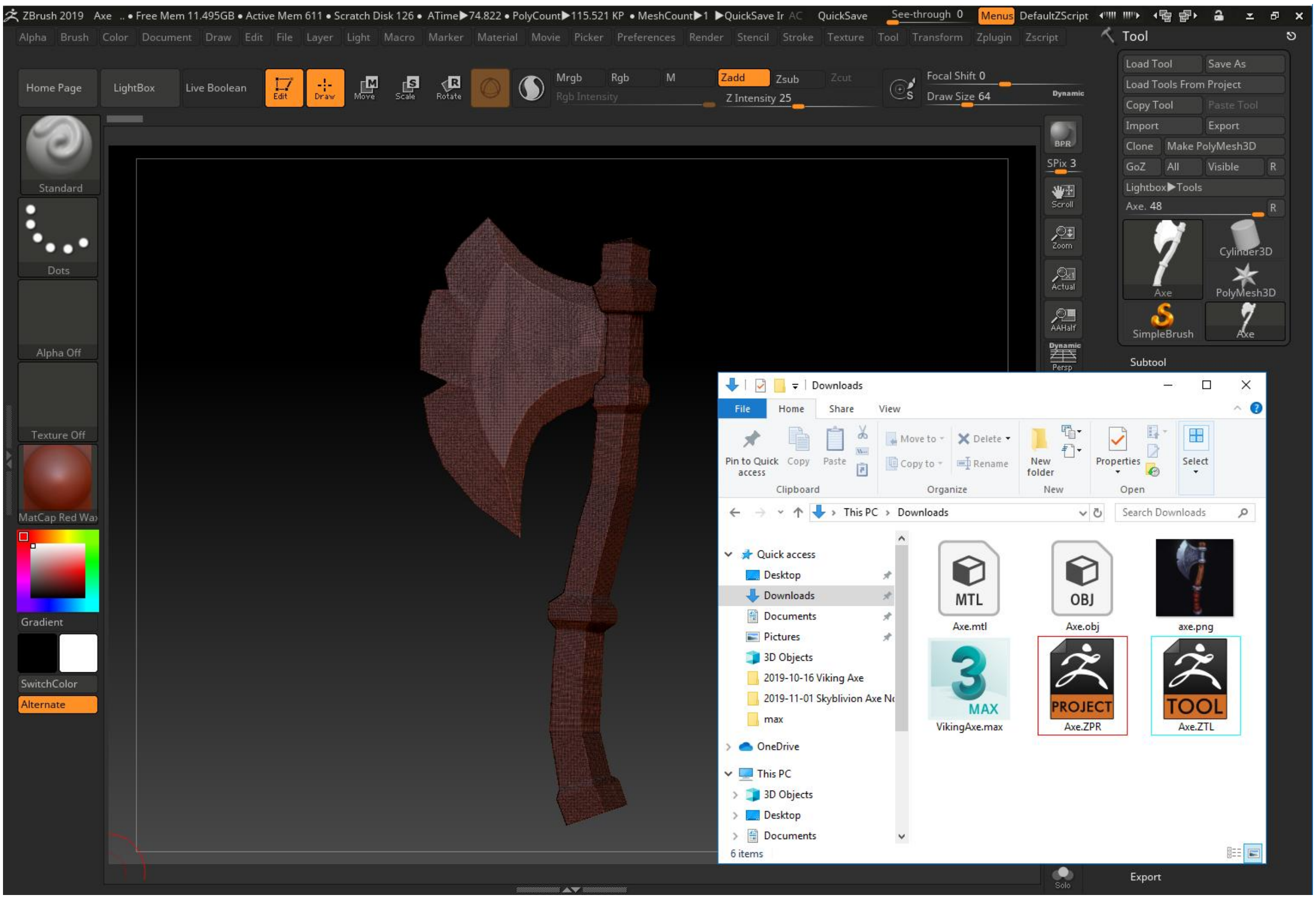
Save it first. File → Save As → Axe.zpr (**zpr** means **z**brush **pr**oject)



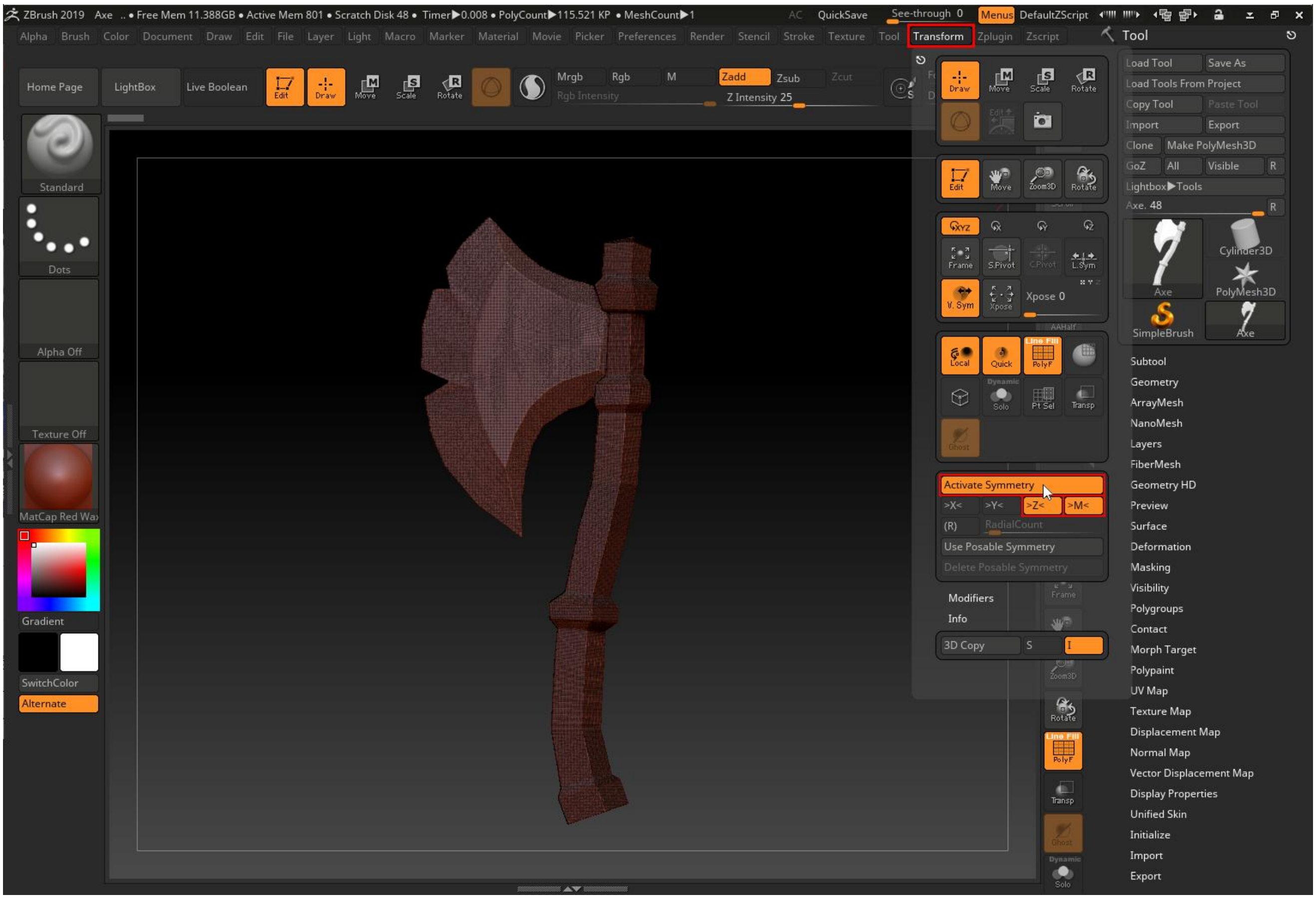
Also go to Tool → Save As→ Axe.ztl (**ztl** means **z**brush **t**oo**l**)



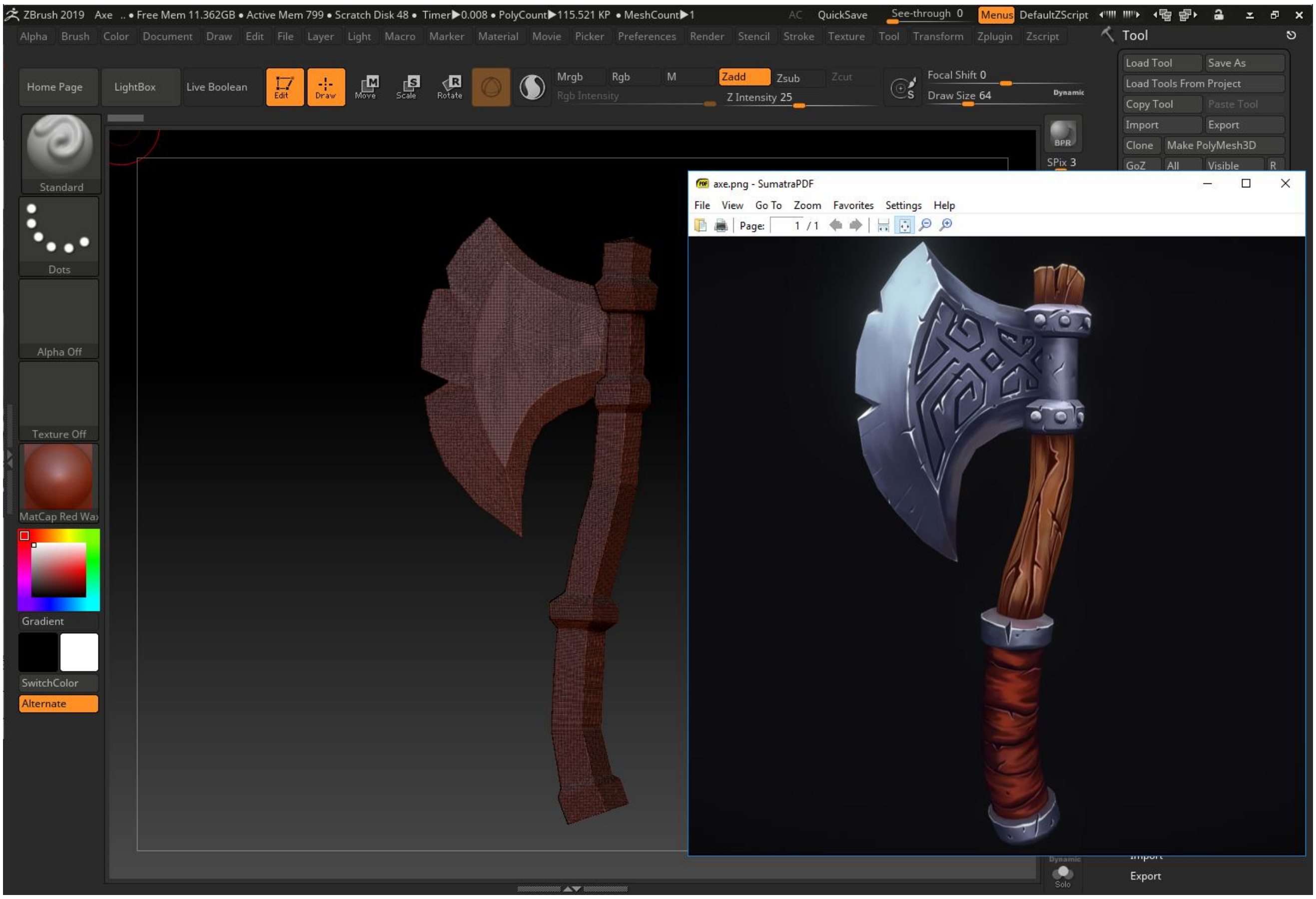
Open folder and you can see ZPR and ZTL files



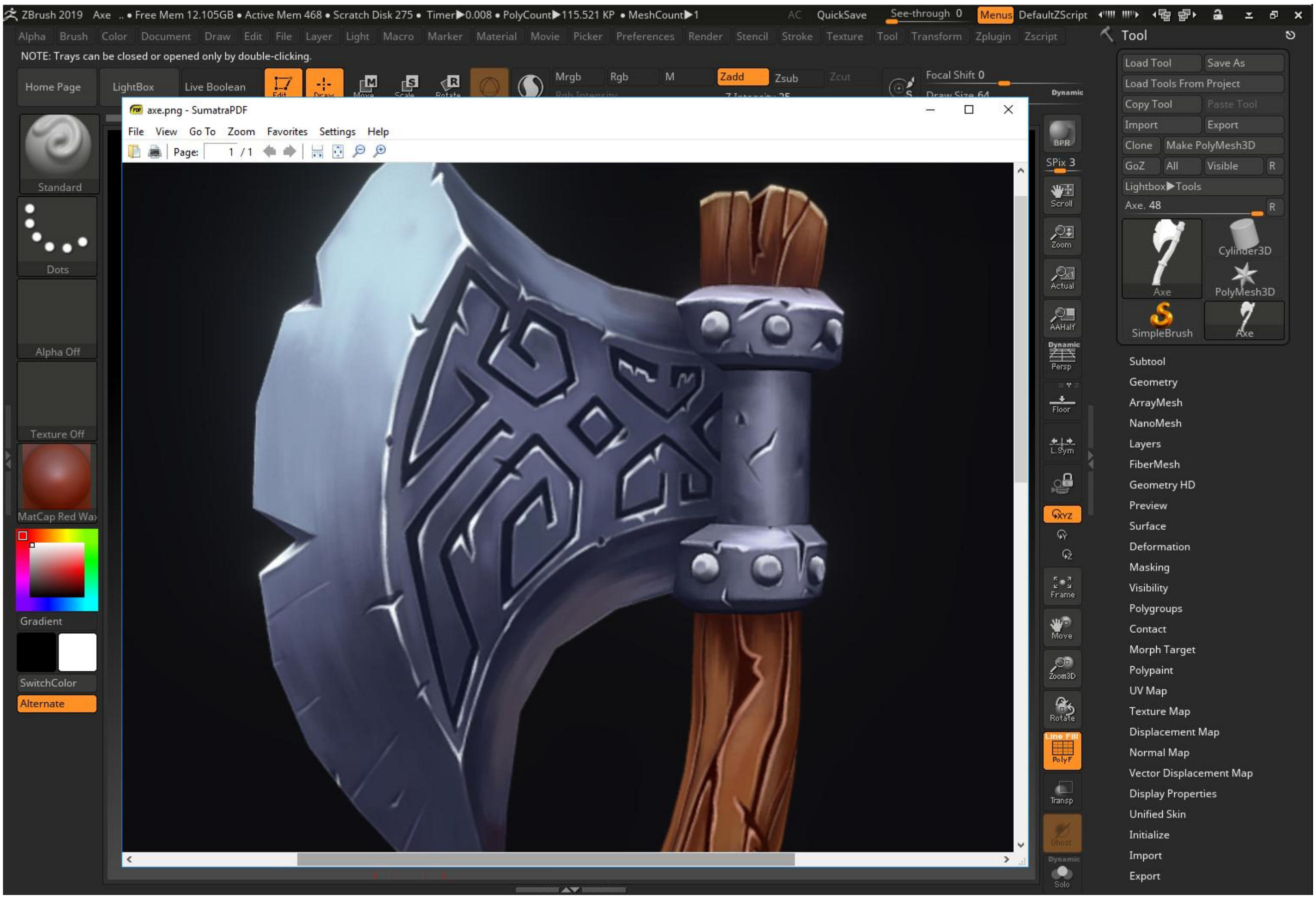
Turn on symmetry, Transform → Activate Symmetry



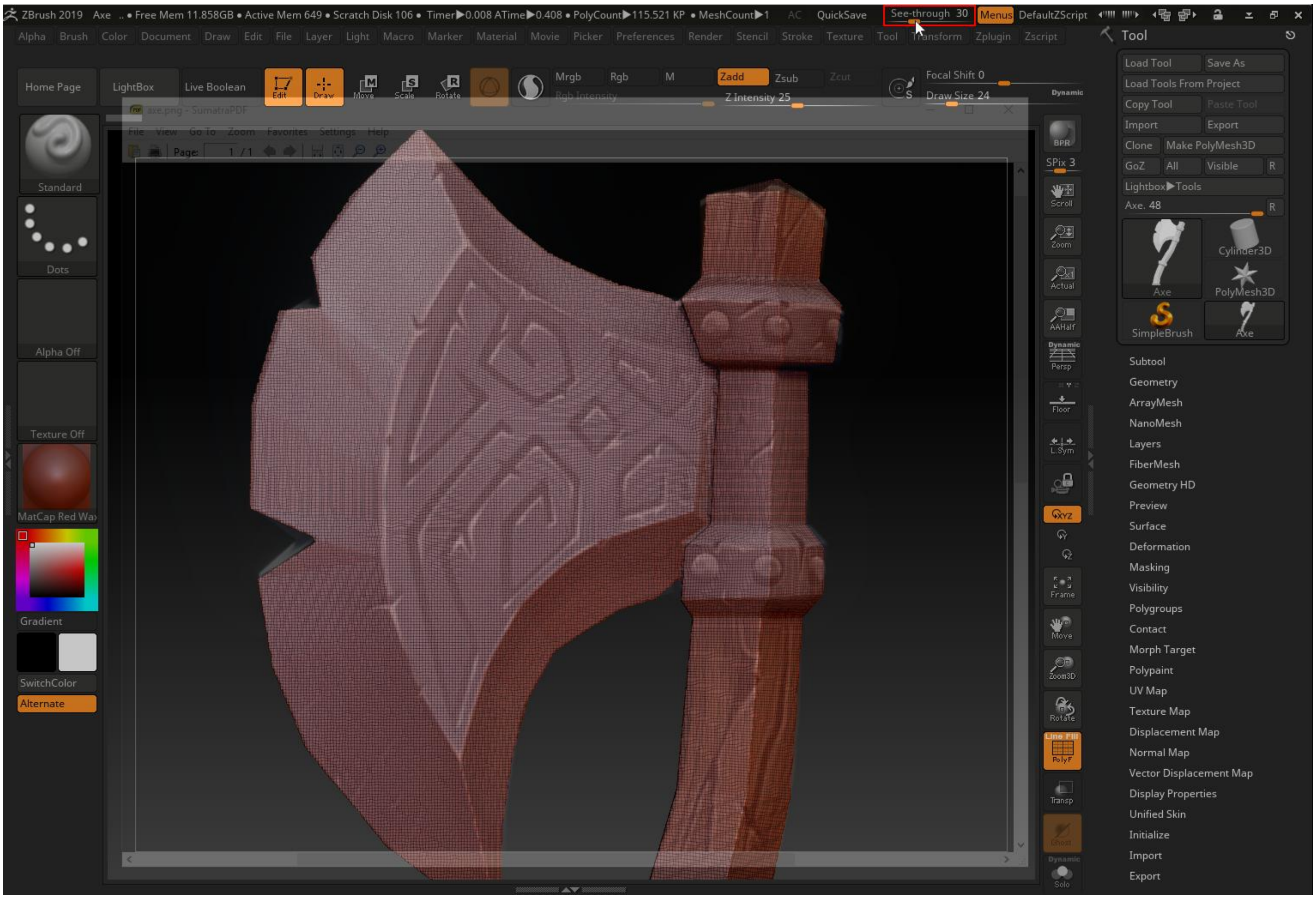
Open reference picture



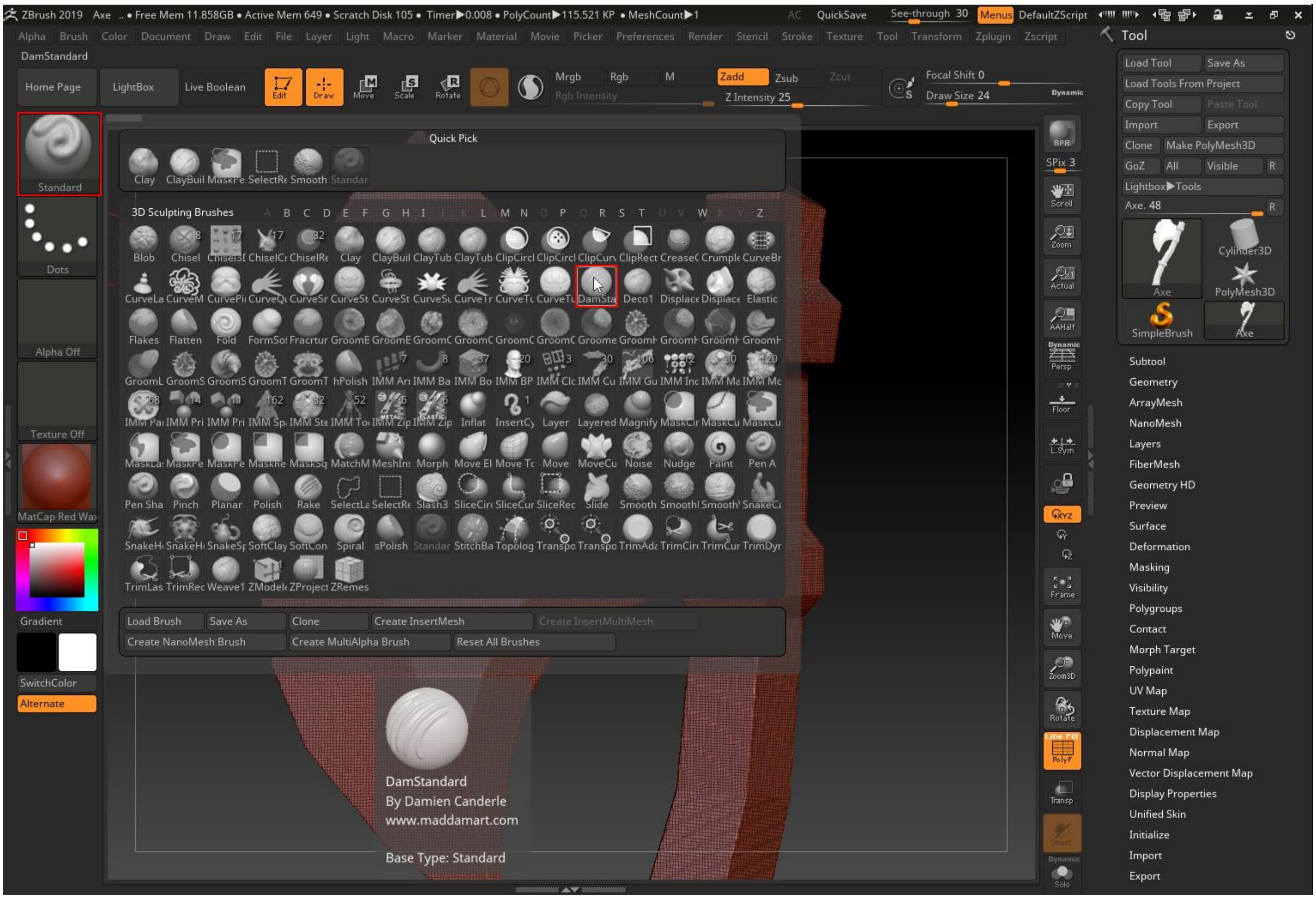
Zoom the area, and then put it under Zbrush



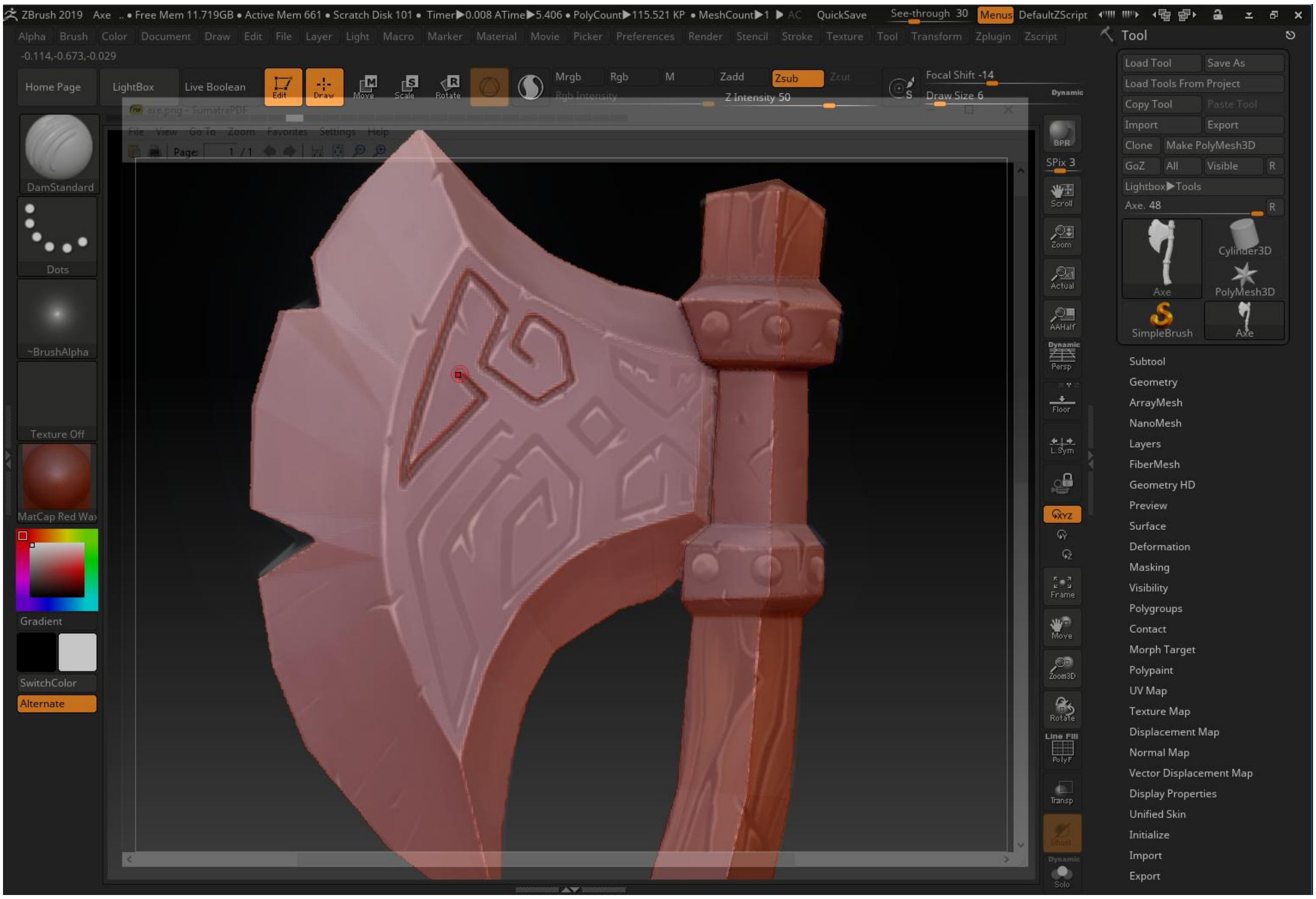
Adjust see-through: 30, and zoom the axe blade



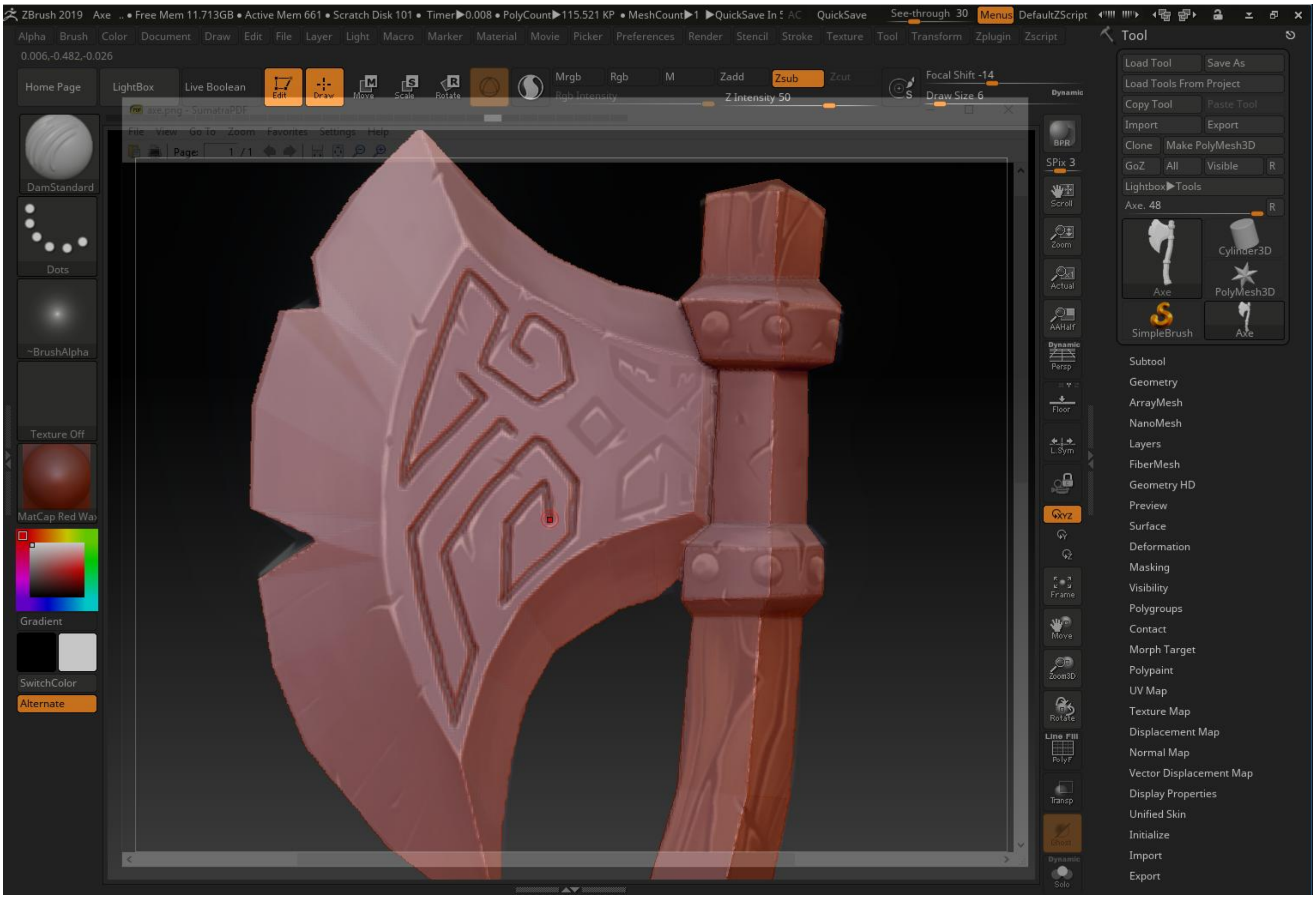
Select brush → DamStandard



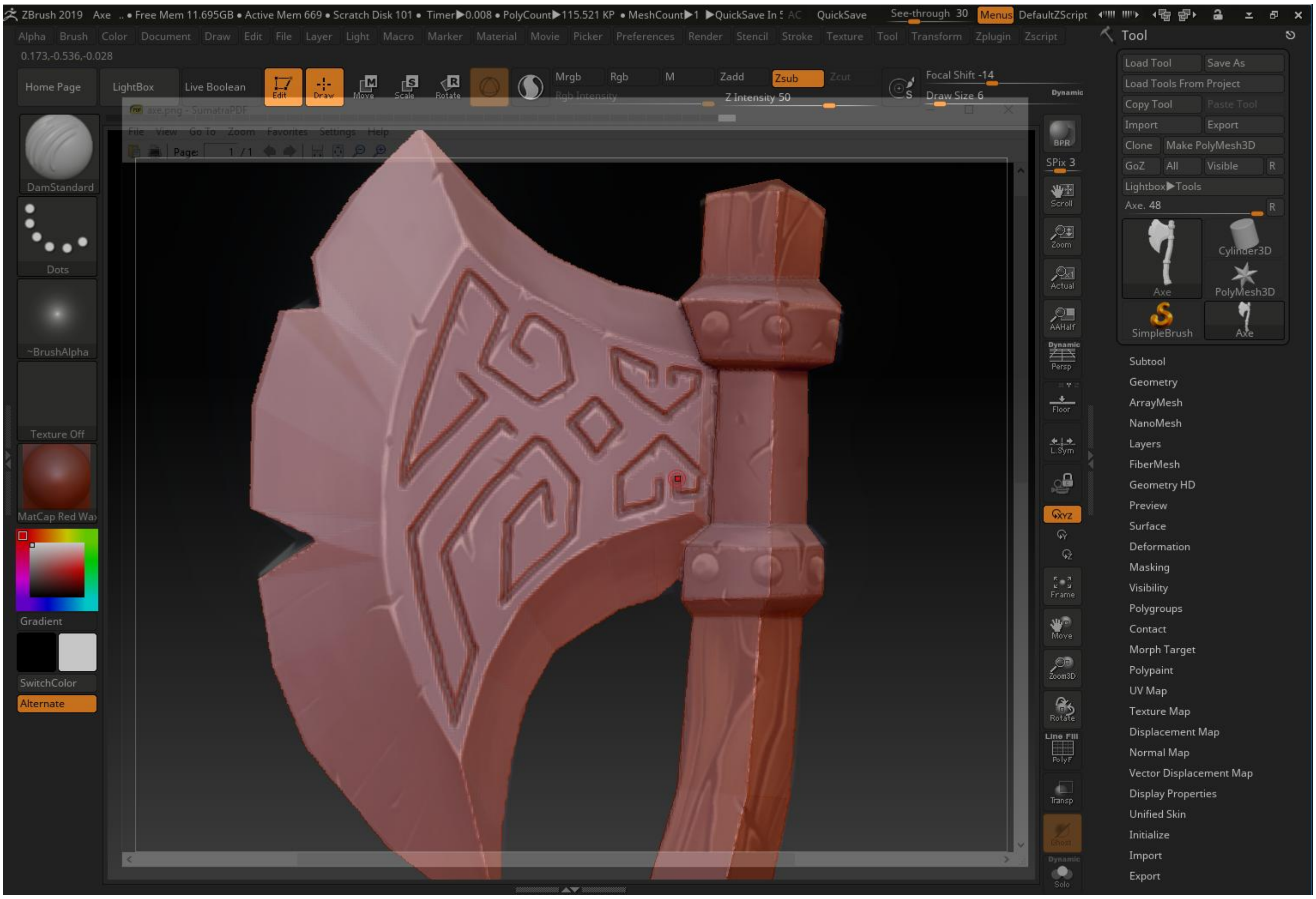
Adjust the draw size, and you can try draw it



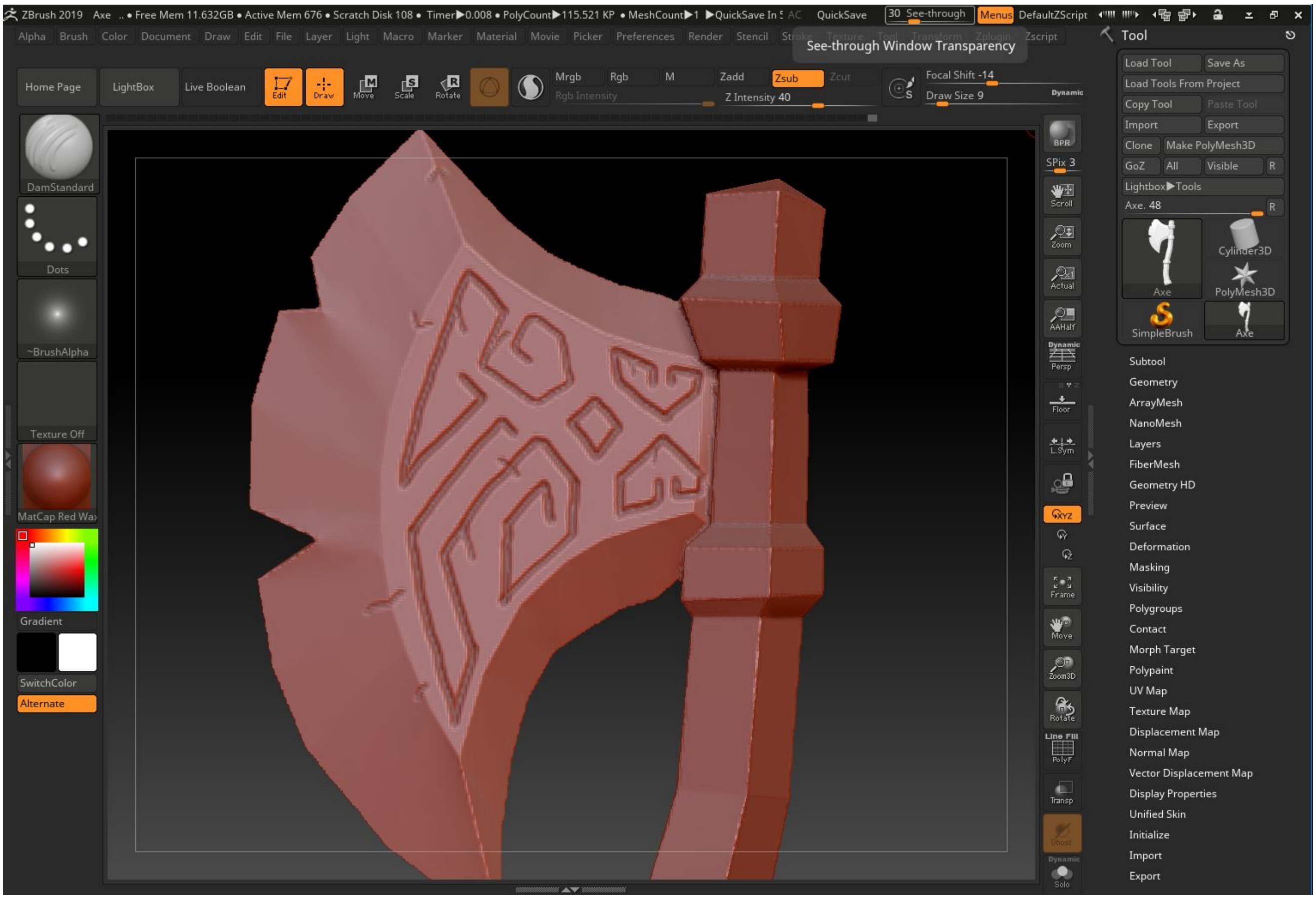
Slowly draw it…



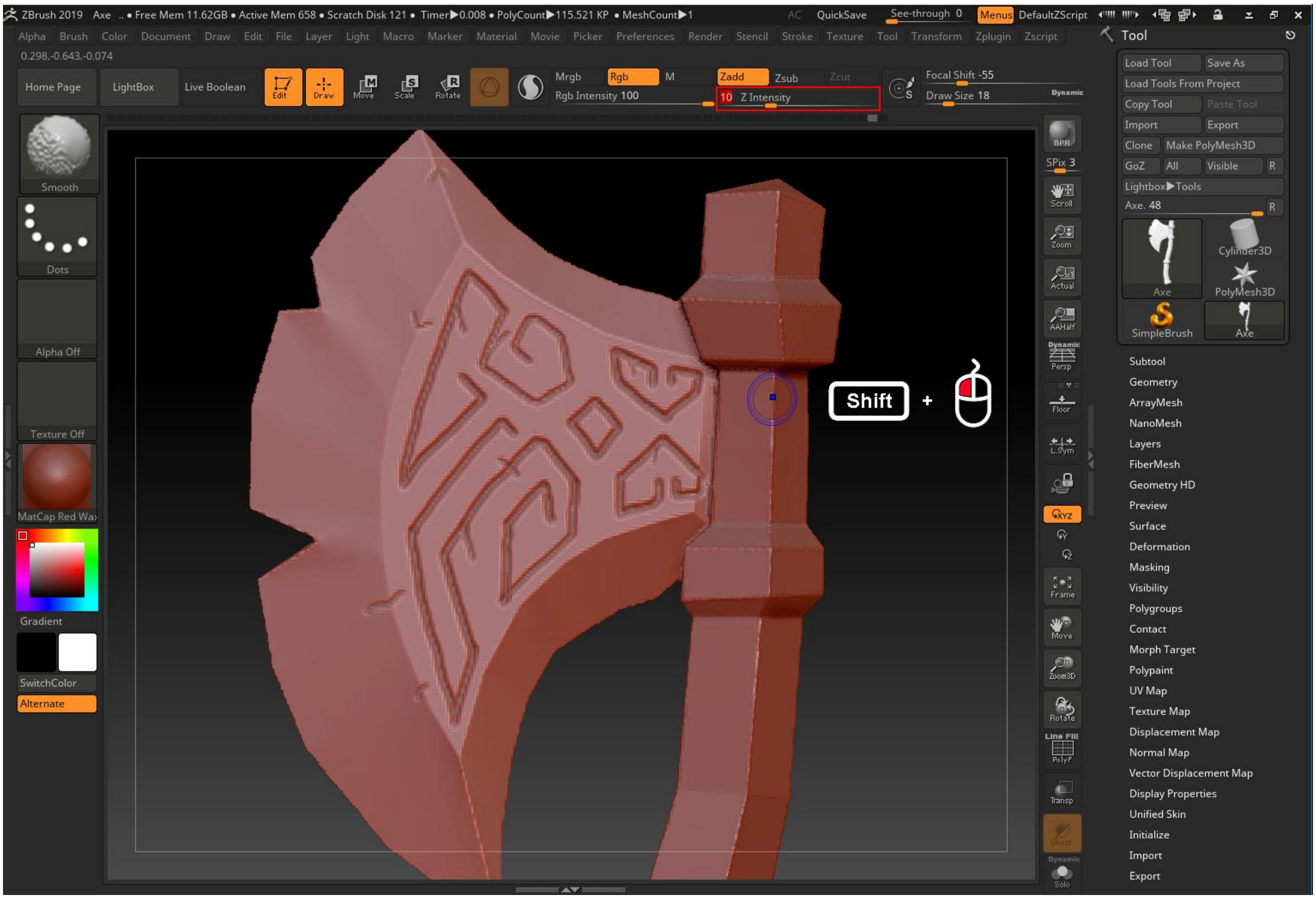
Repeat the same step and draw it



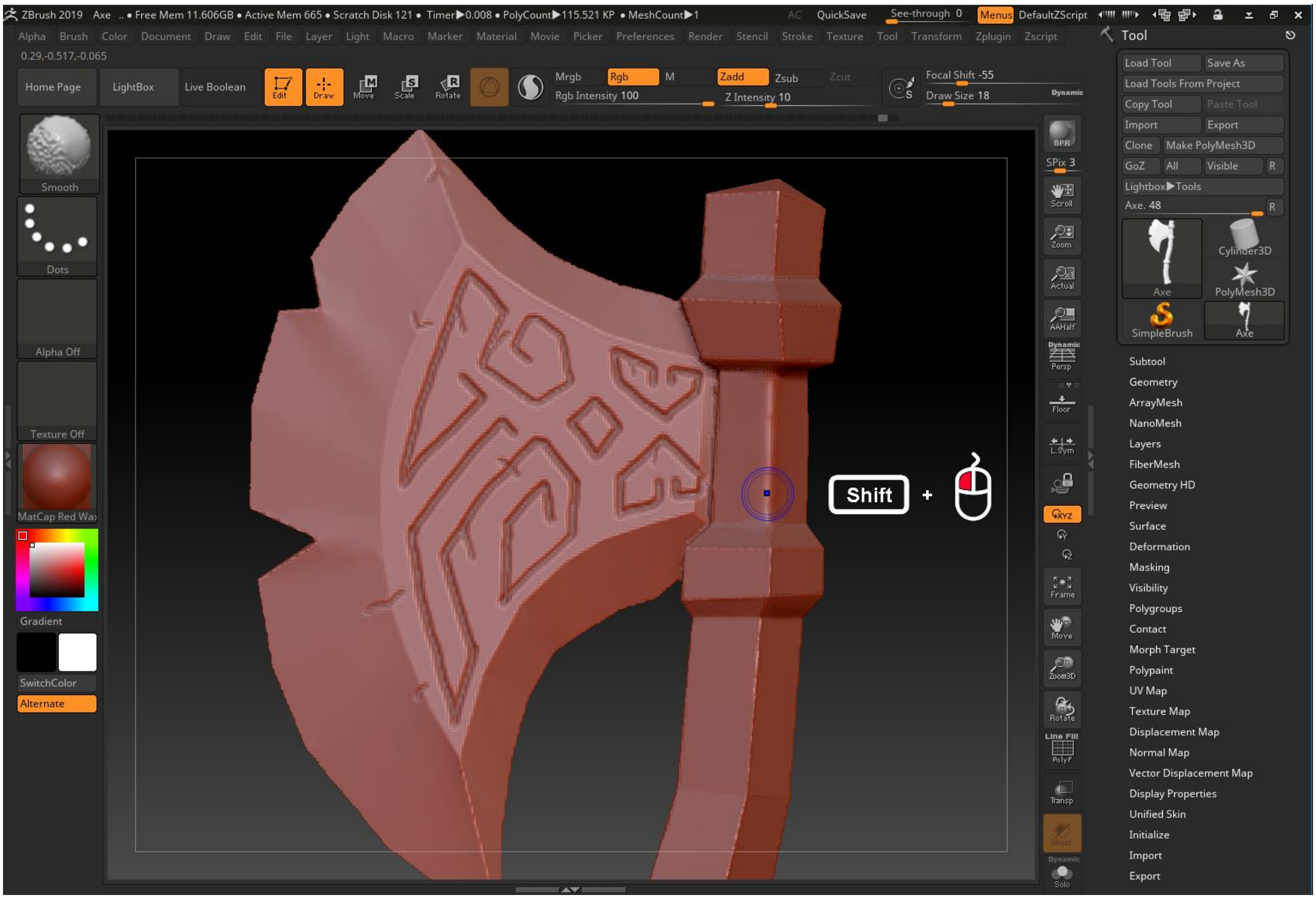
Add more damage detail on axe blade, done...



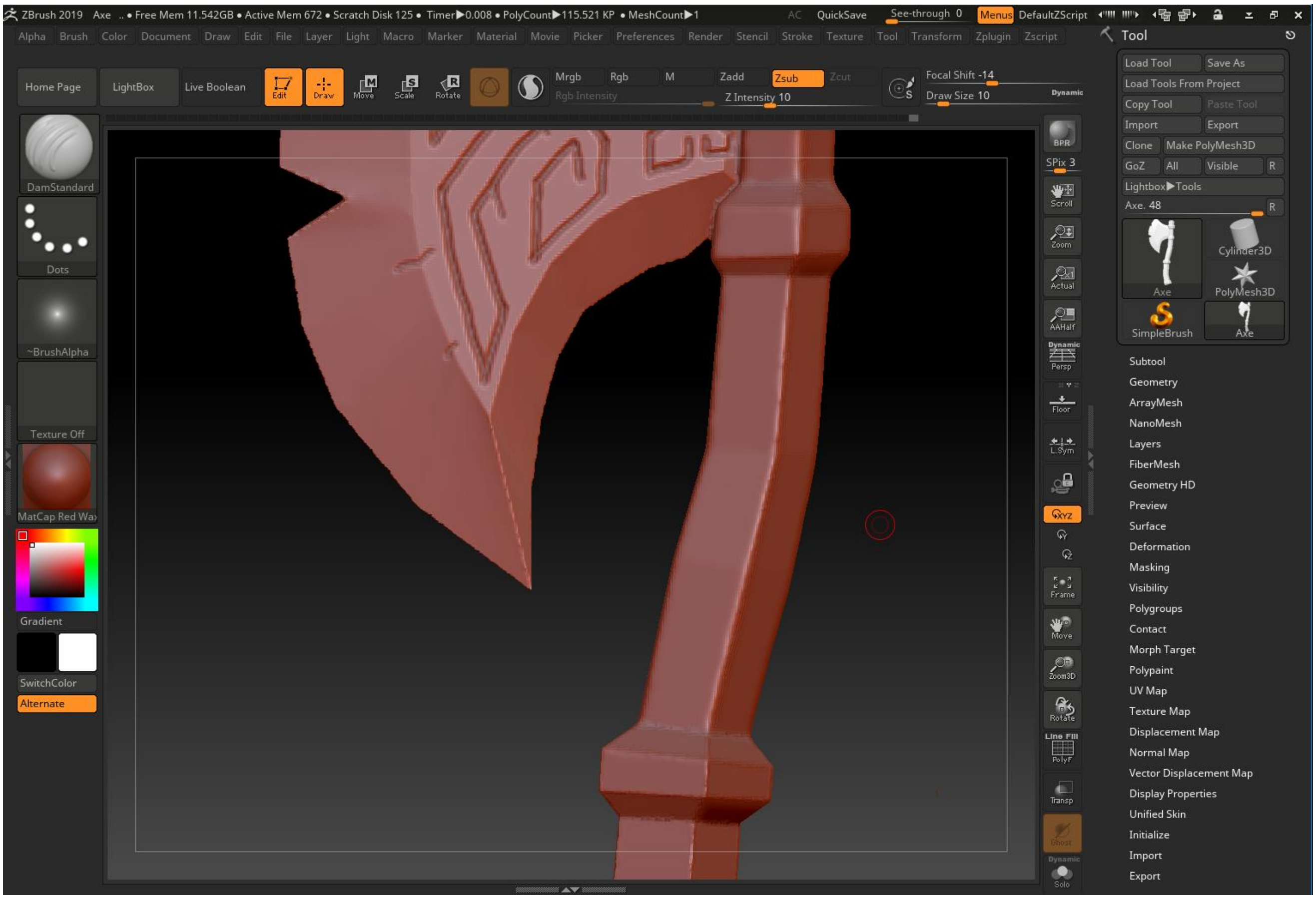
Hold shift to smooth the side and handle, make sure the Z Intensity: 10



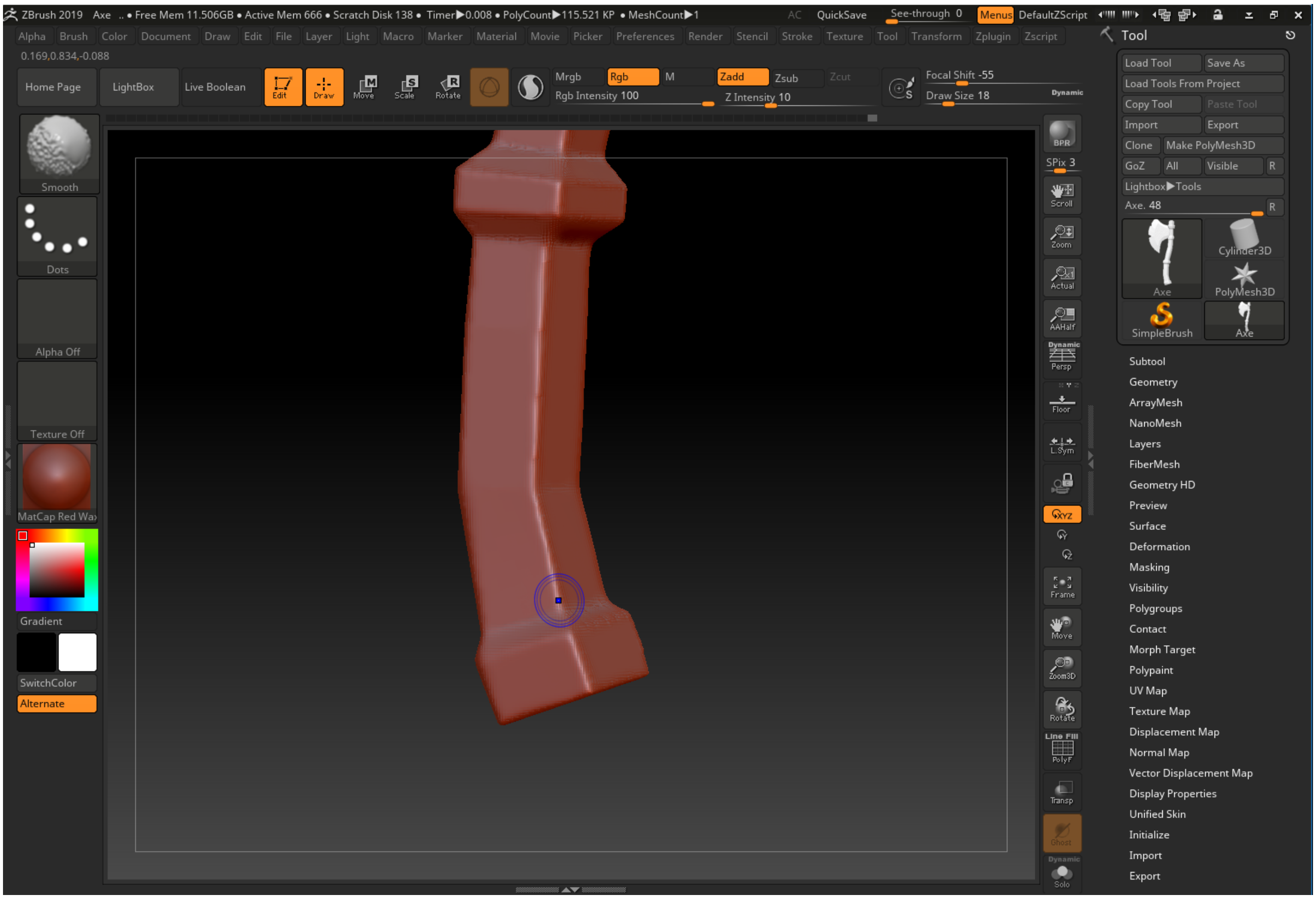
Now the side are much more smoother



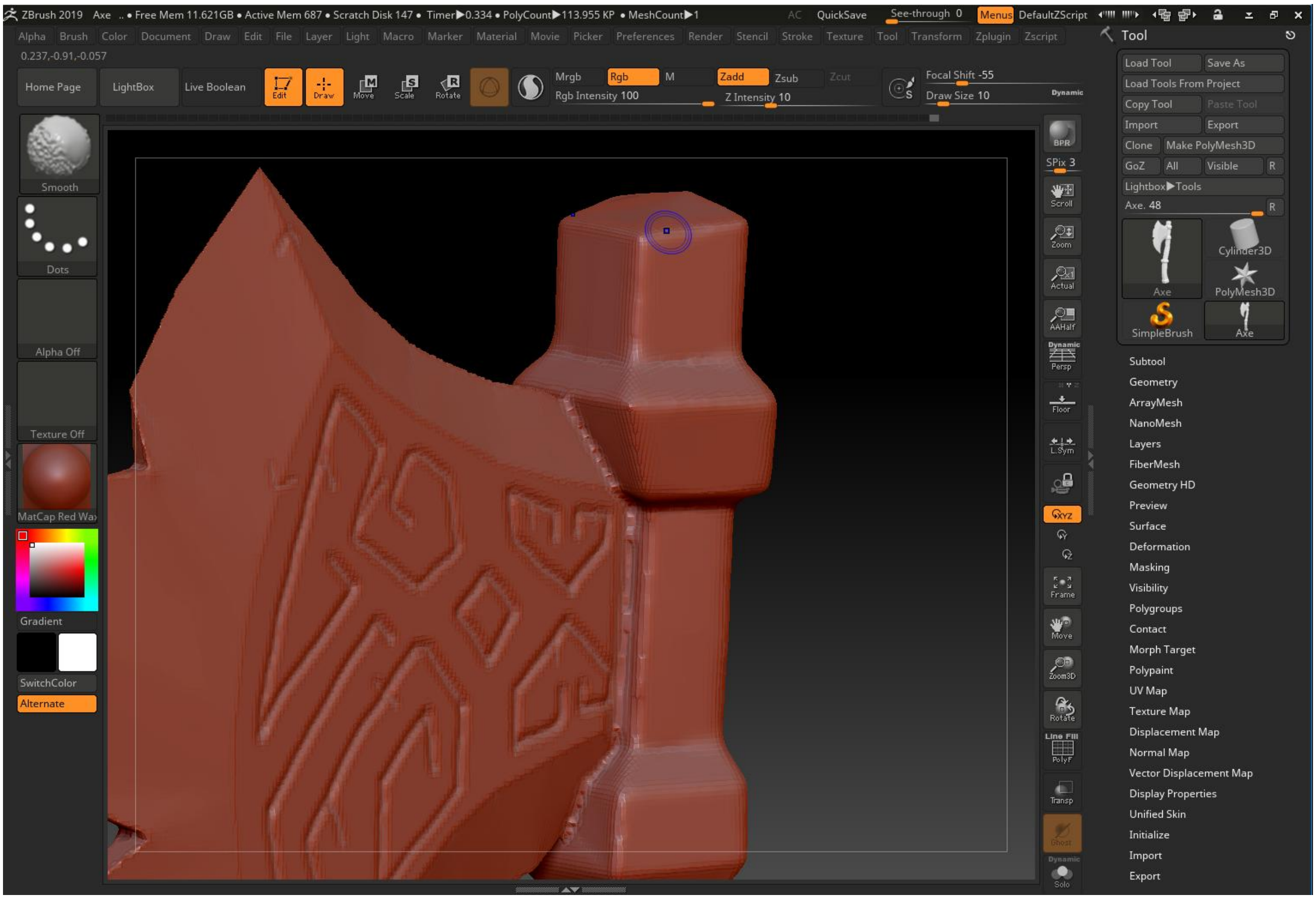
Repeat the same step, hold shift and smooth them



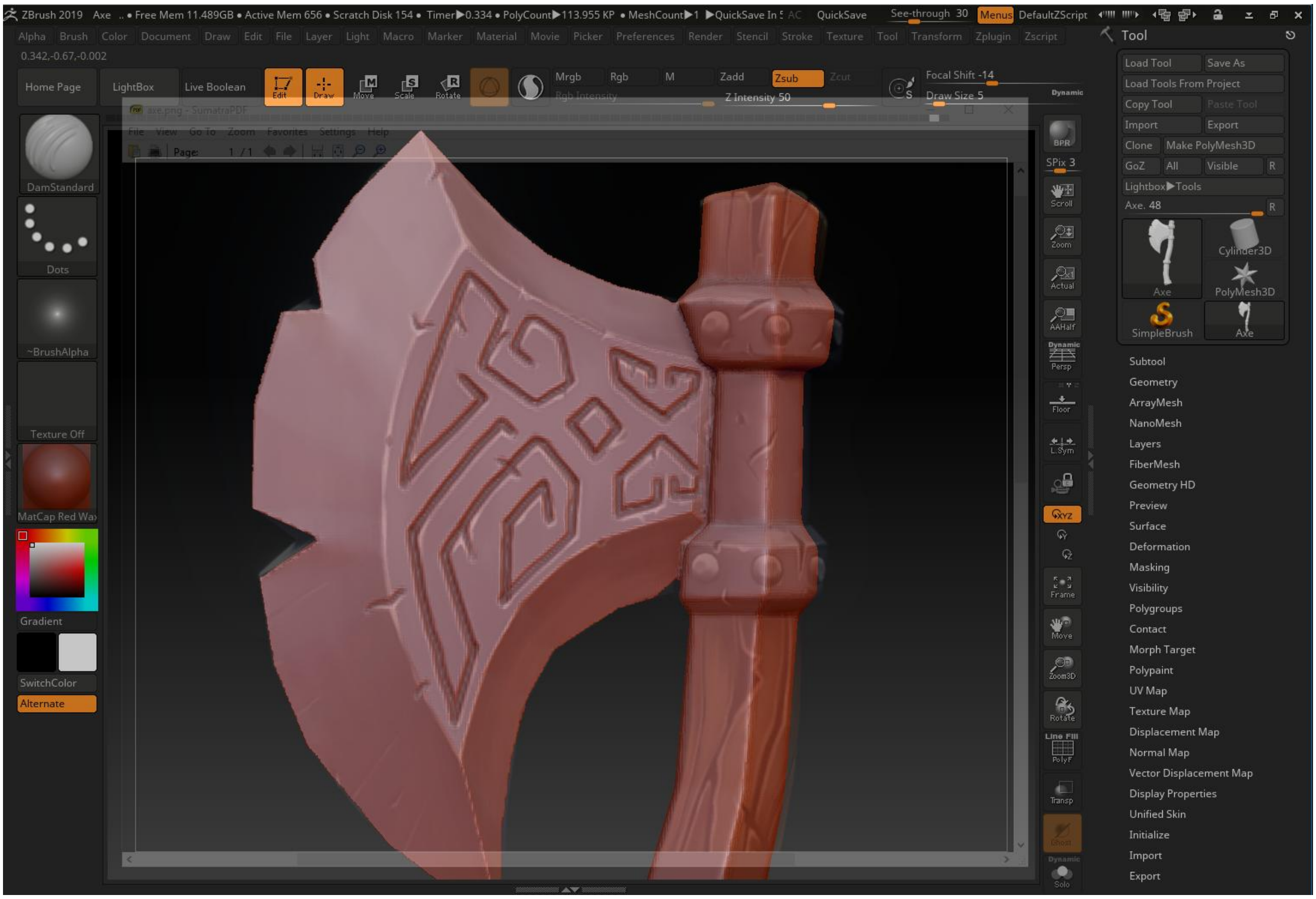
Also smooth the handle part

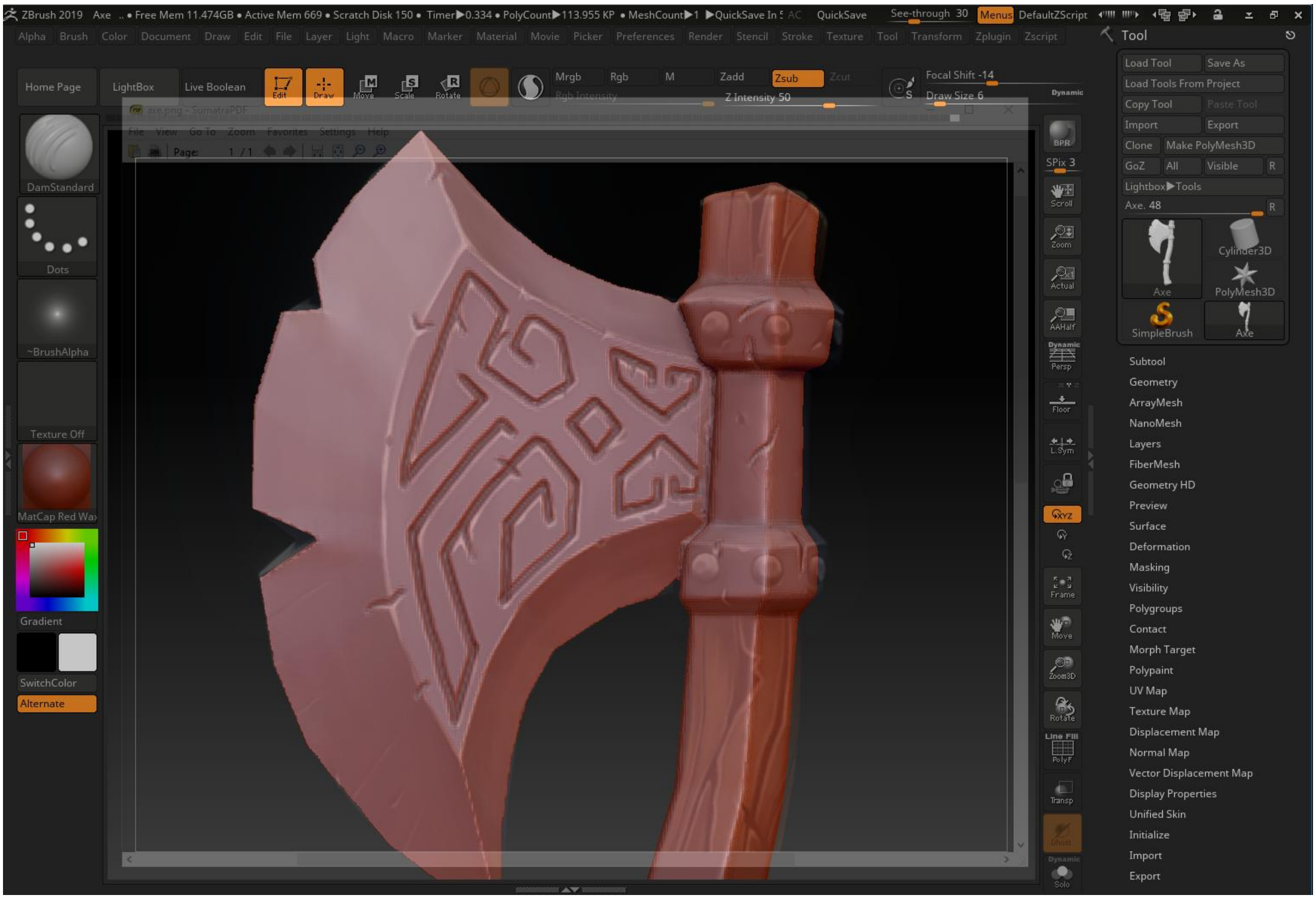


And don't forget smooth the top part

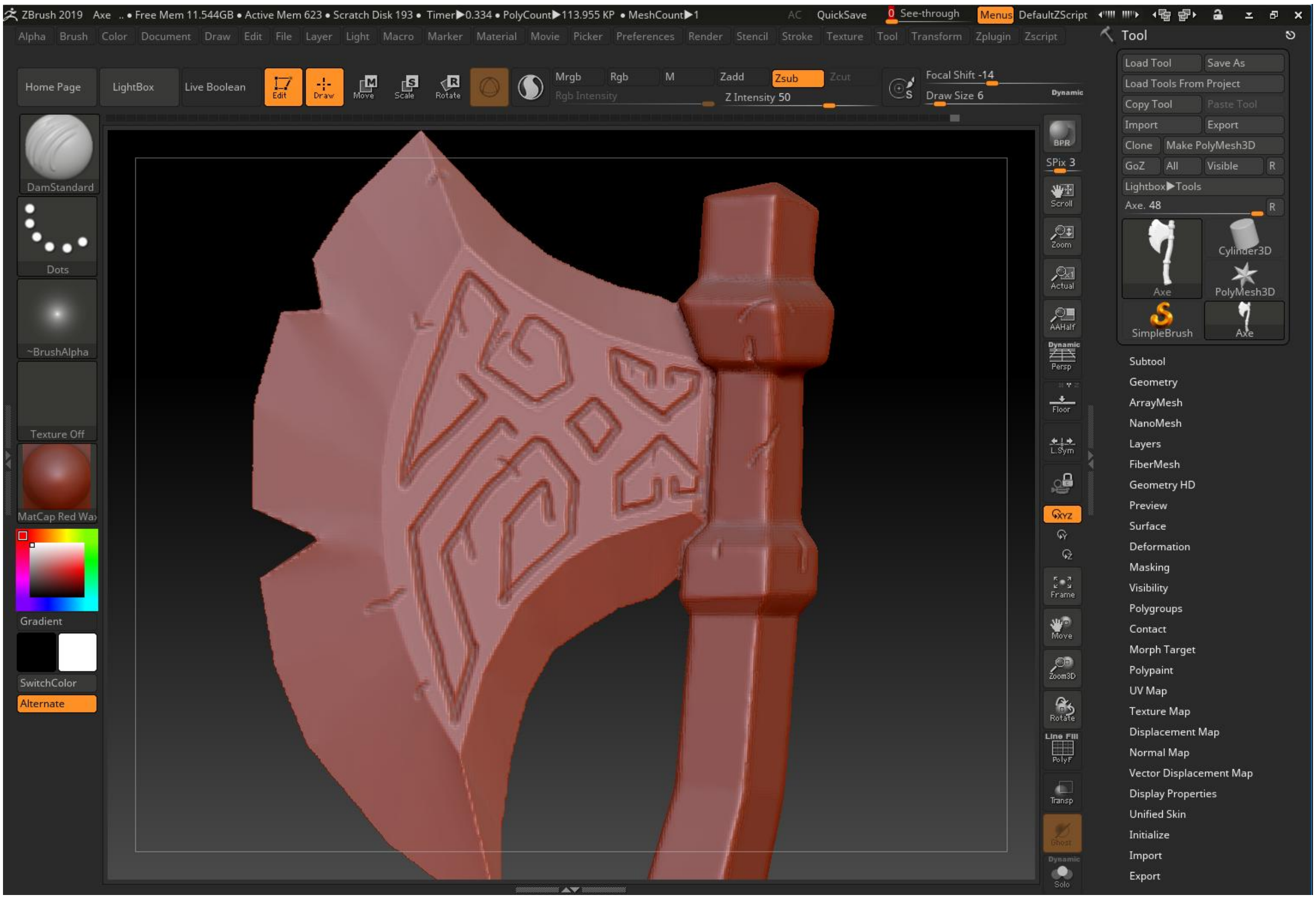


Again, we need add more scratching damage detail

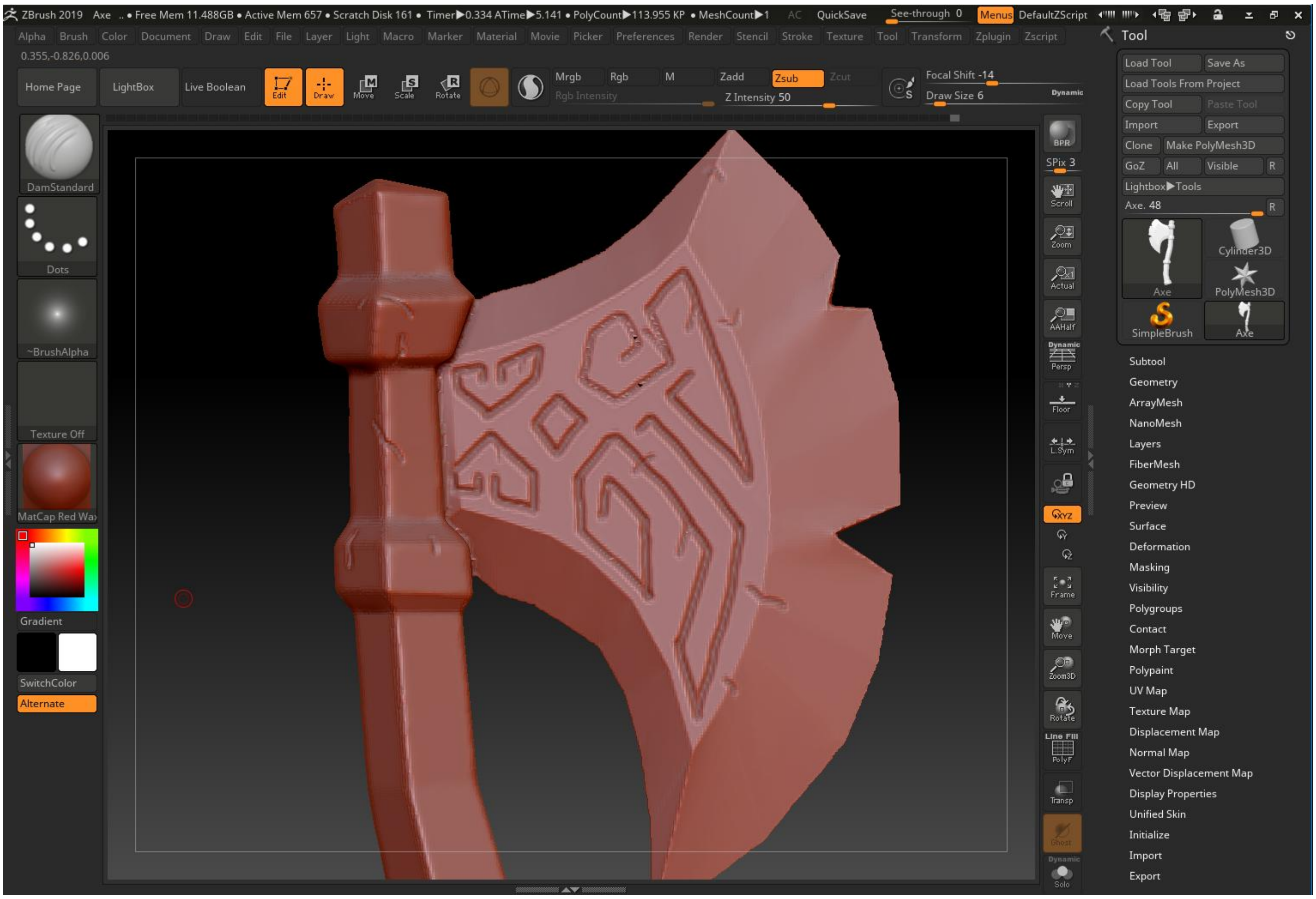




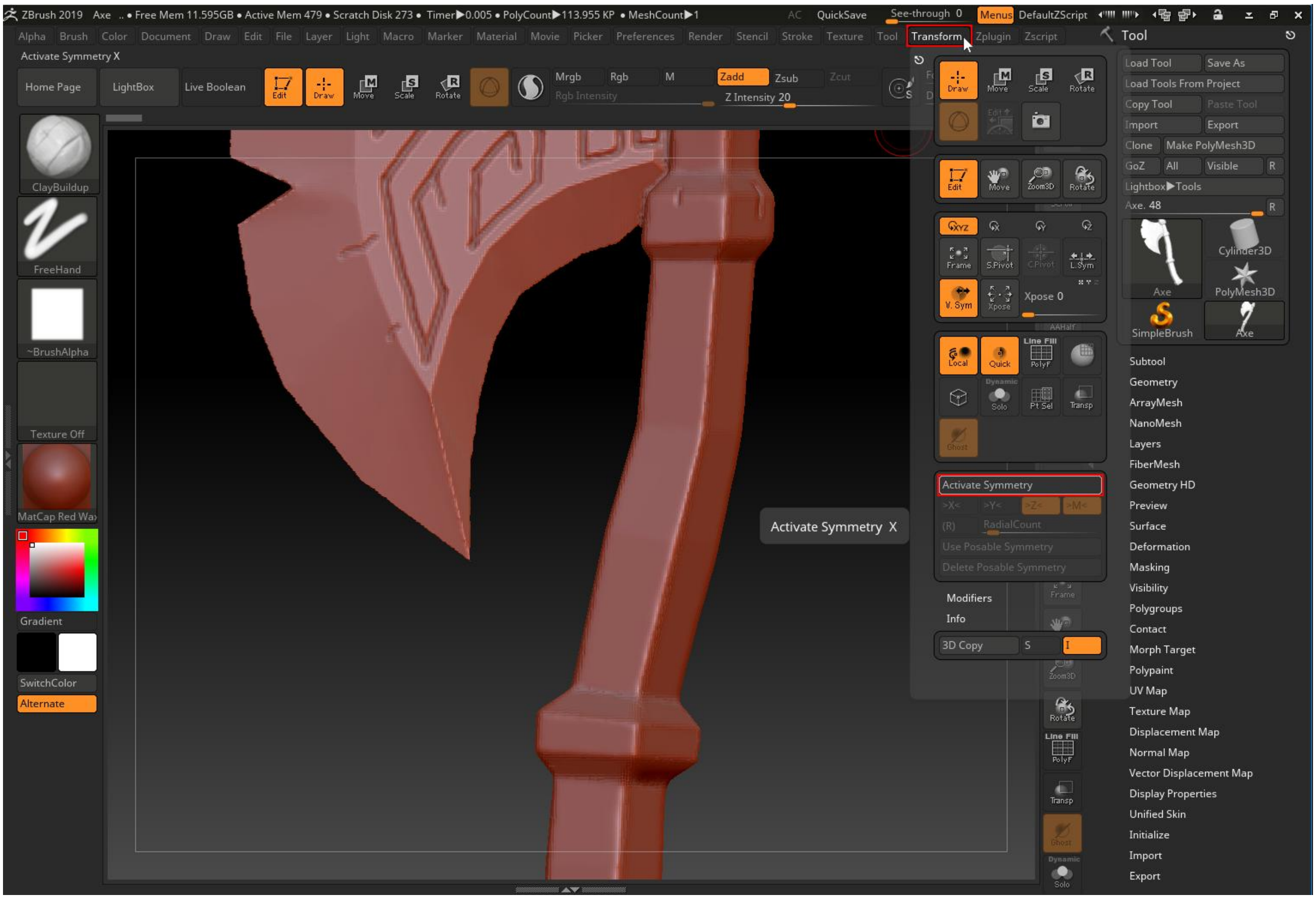
Done



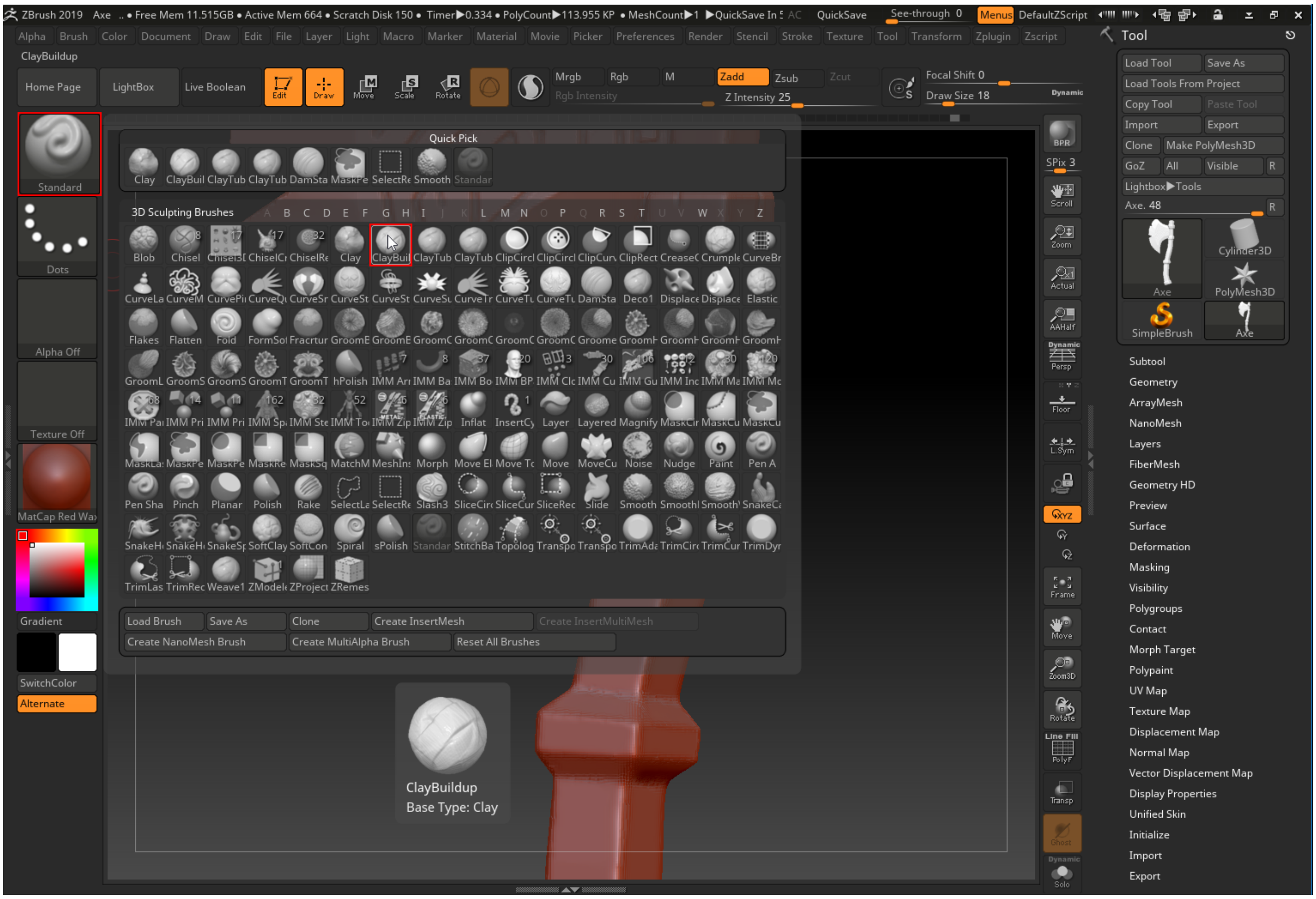
And you can rotate behind and see it, and this the reason why we use symmetry



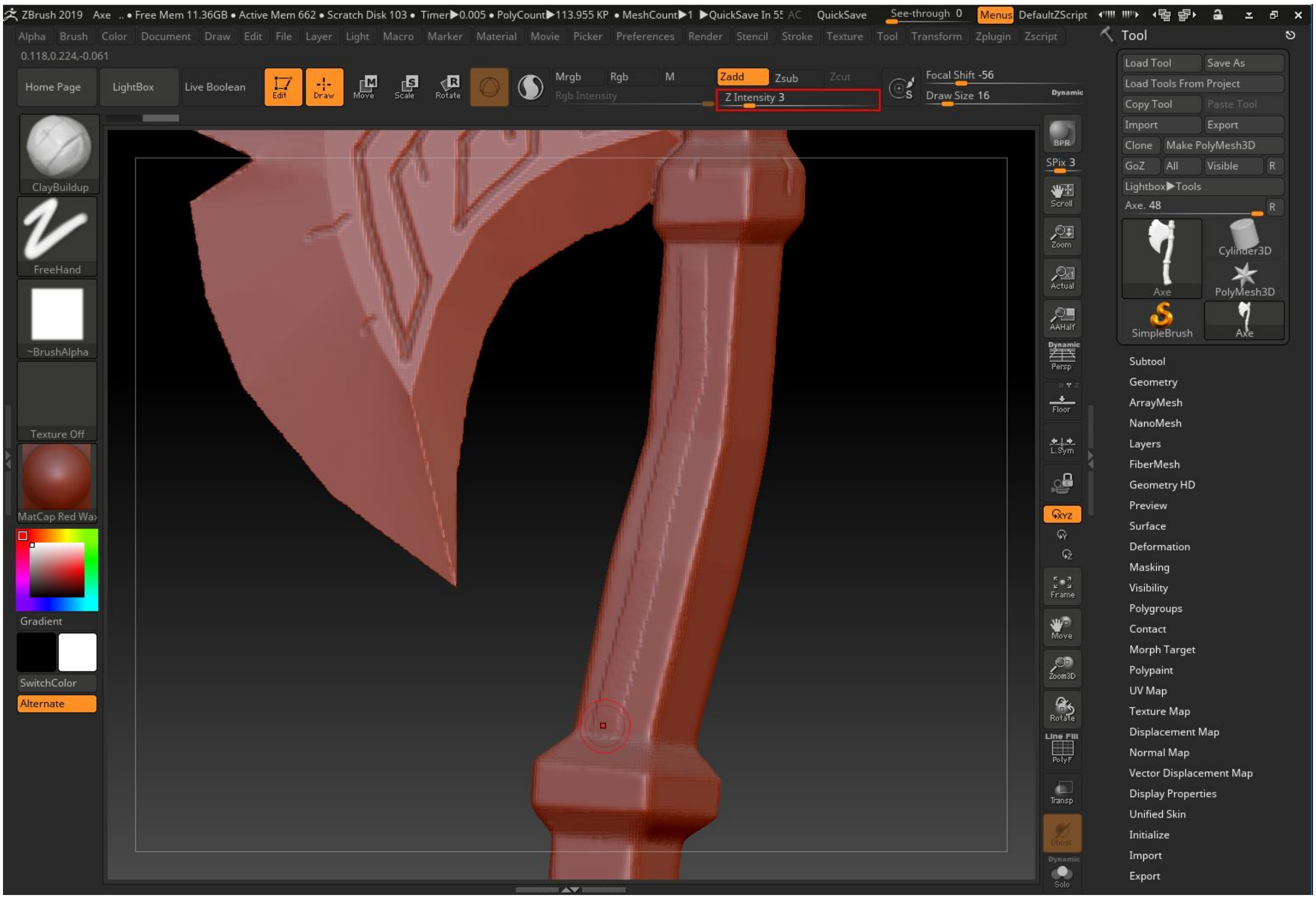
Turn off symmetry



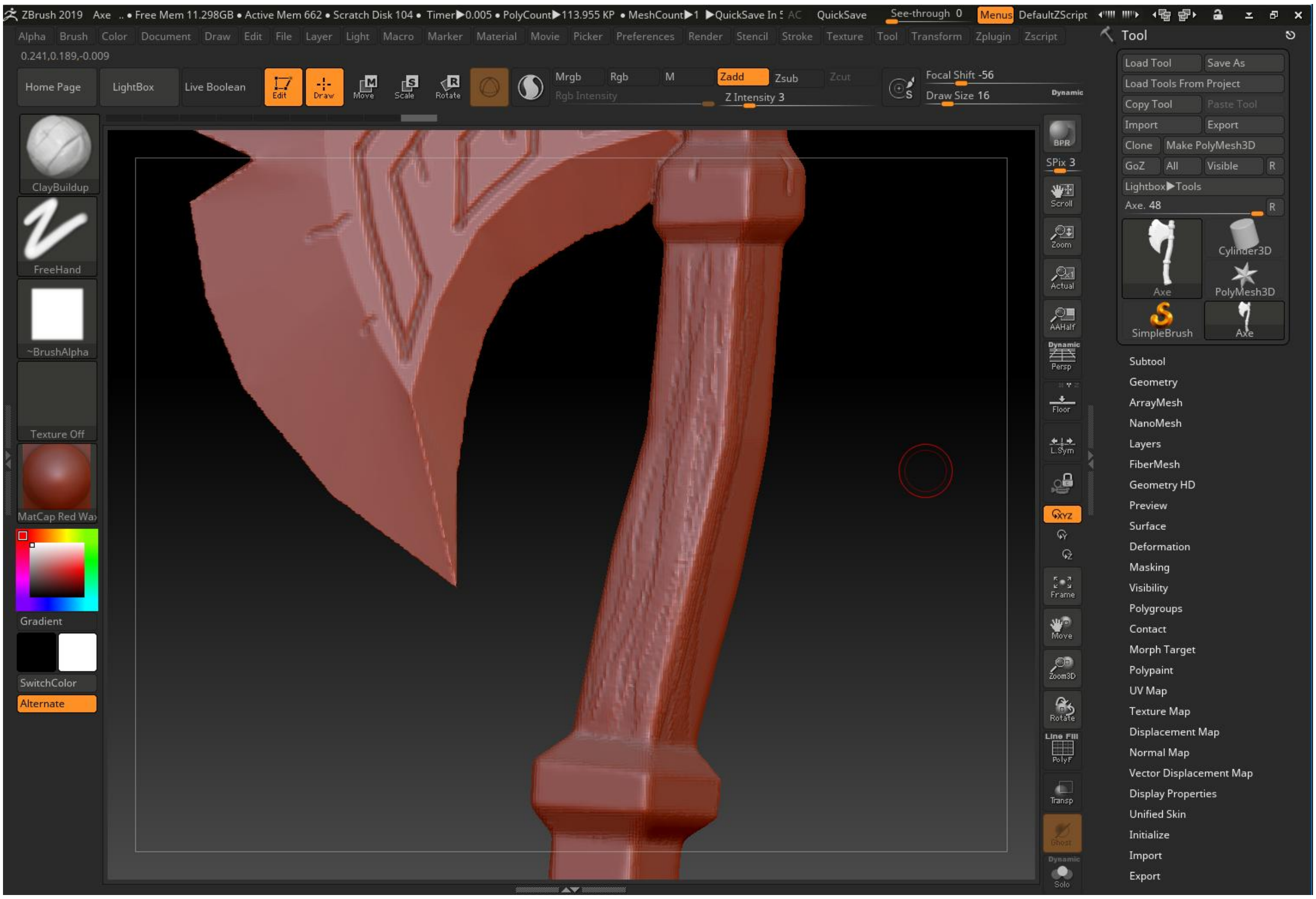
Select brush → ClayBuildup



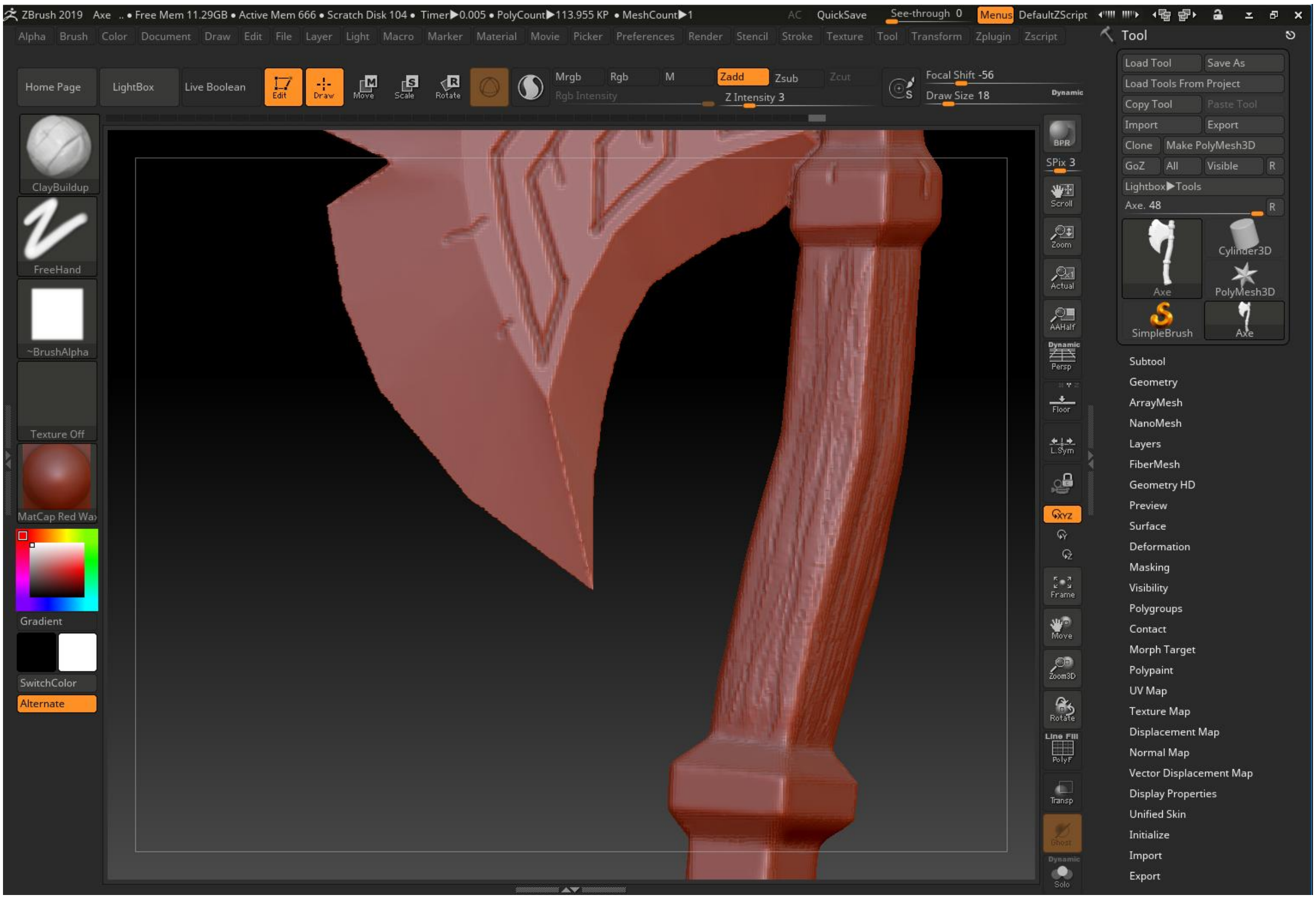
Adjust Z Intensity: 3 , and try to draw wood bump



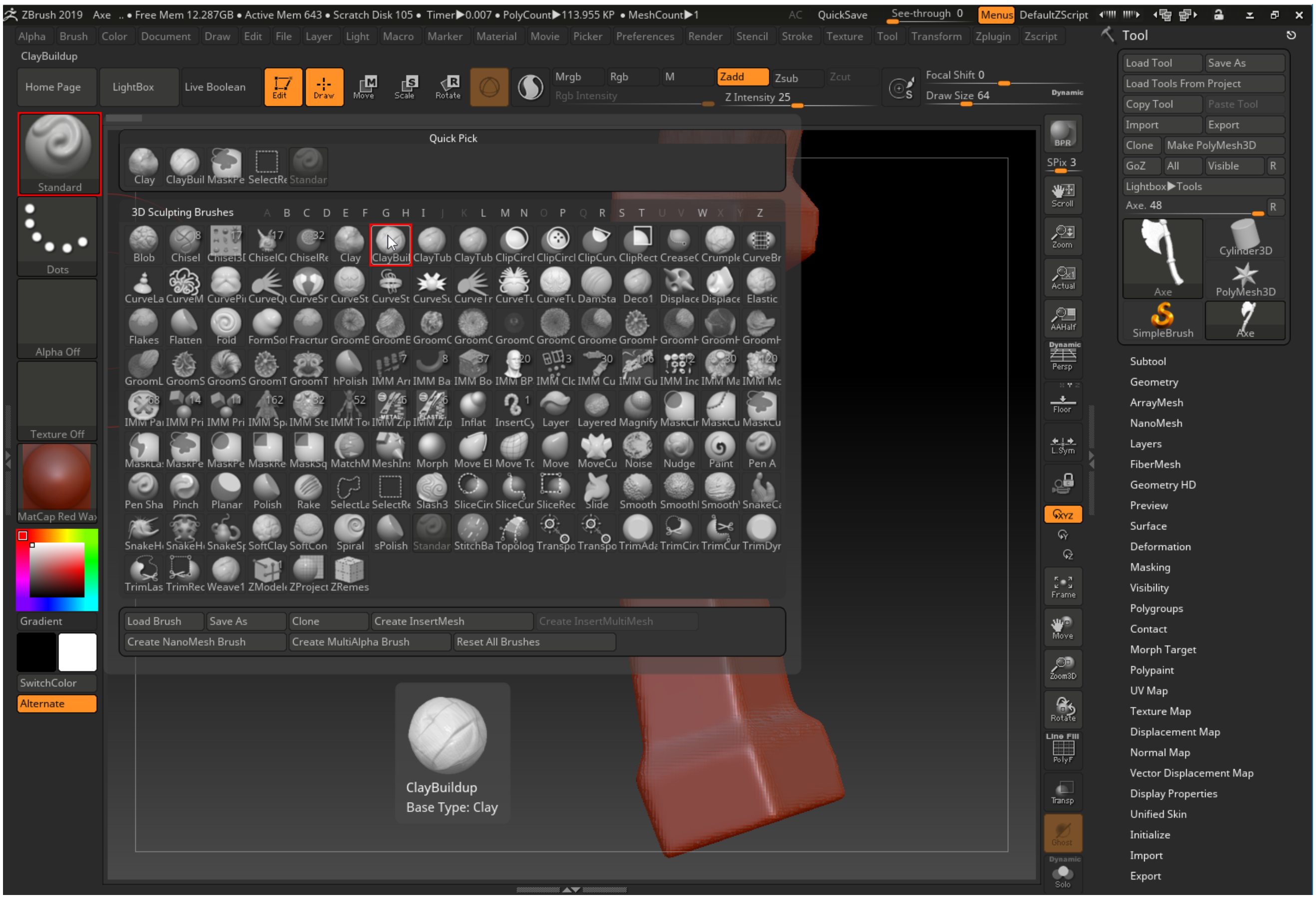
Repeat the same step, keep drawing it



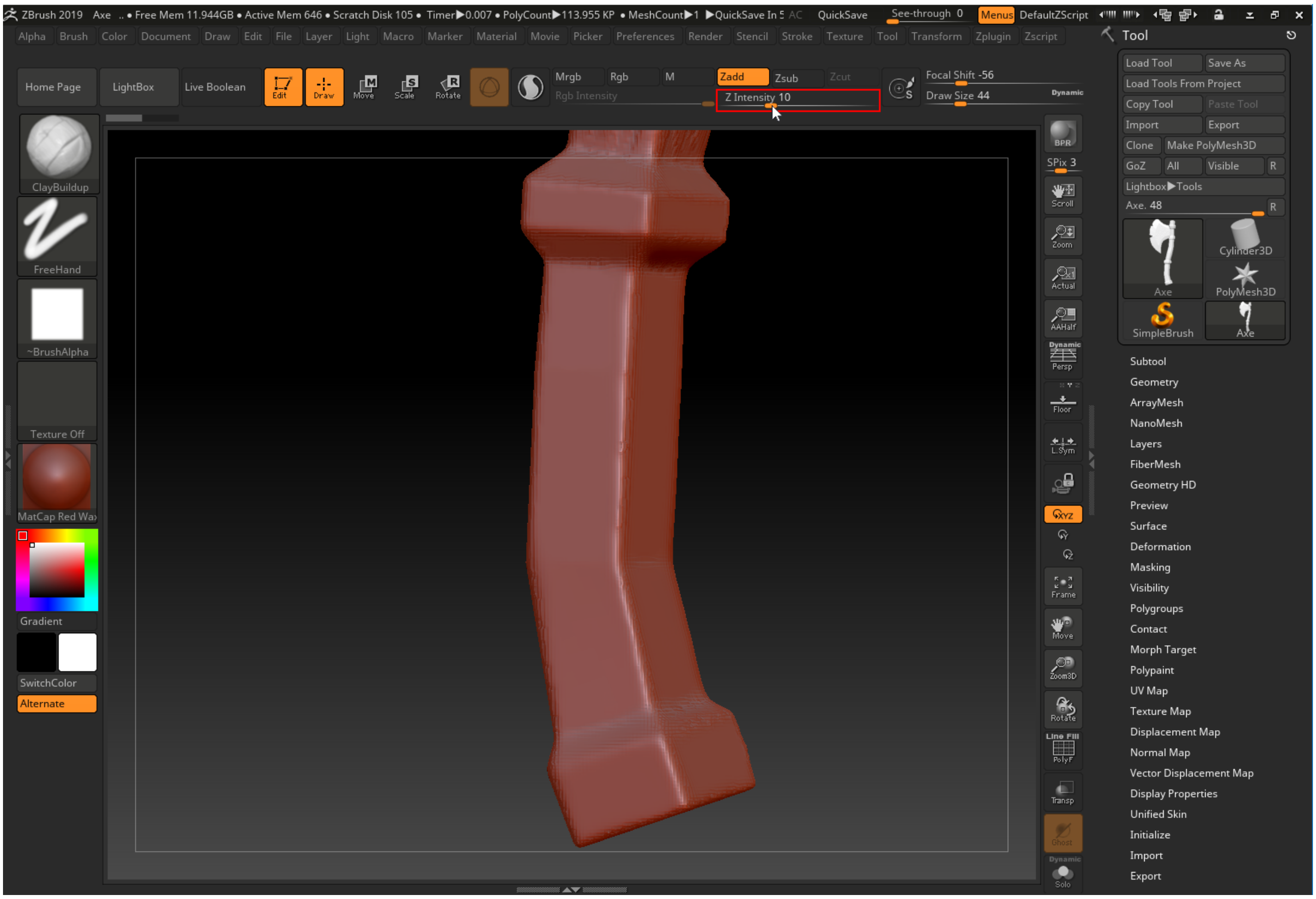
Done



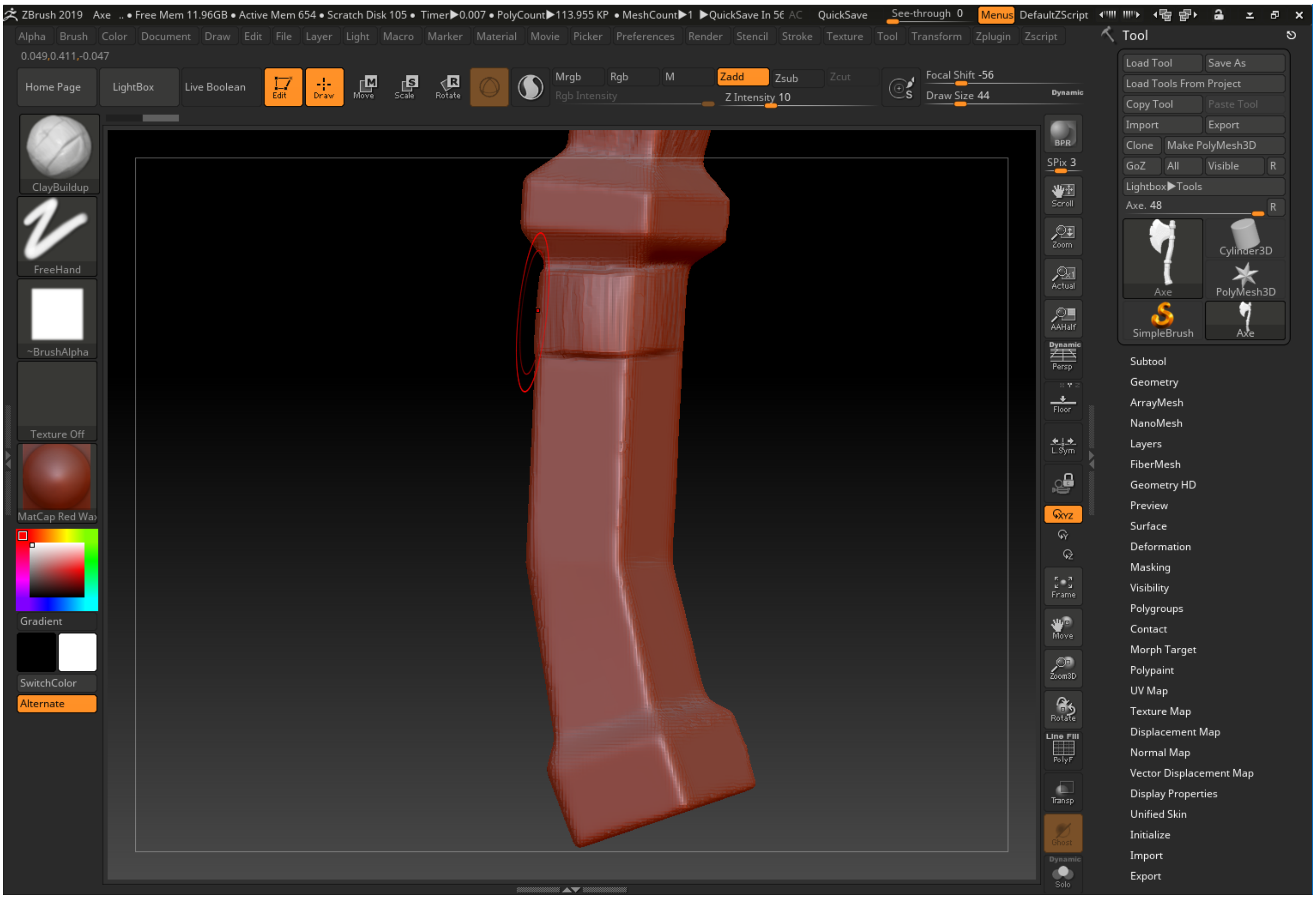
Again, we use ClayBuildup for handle part



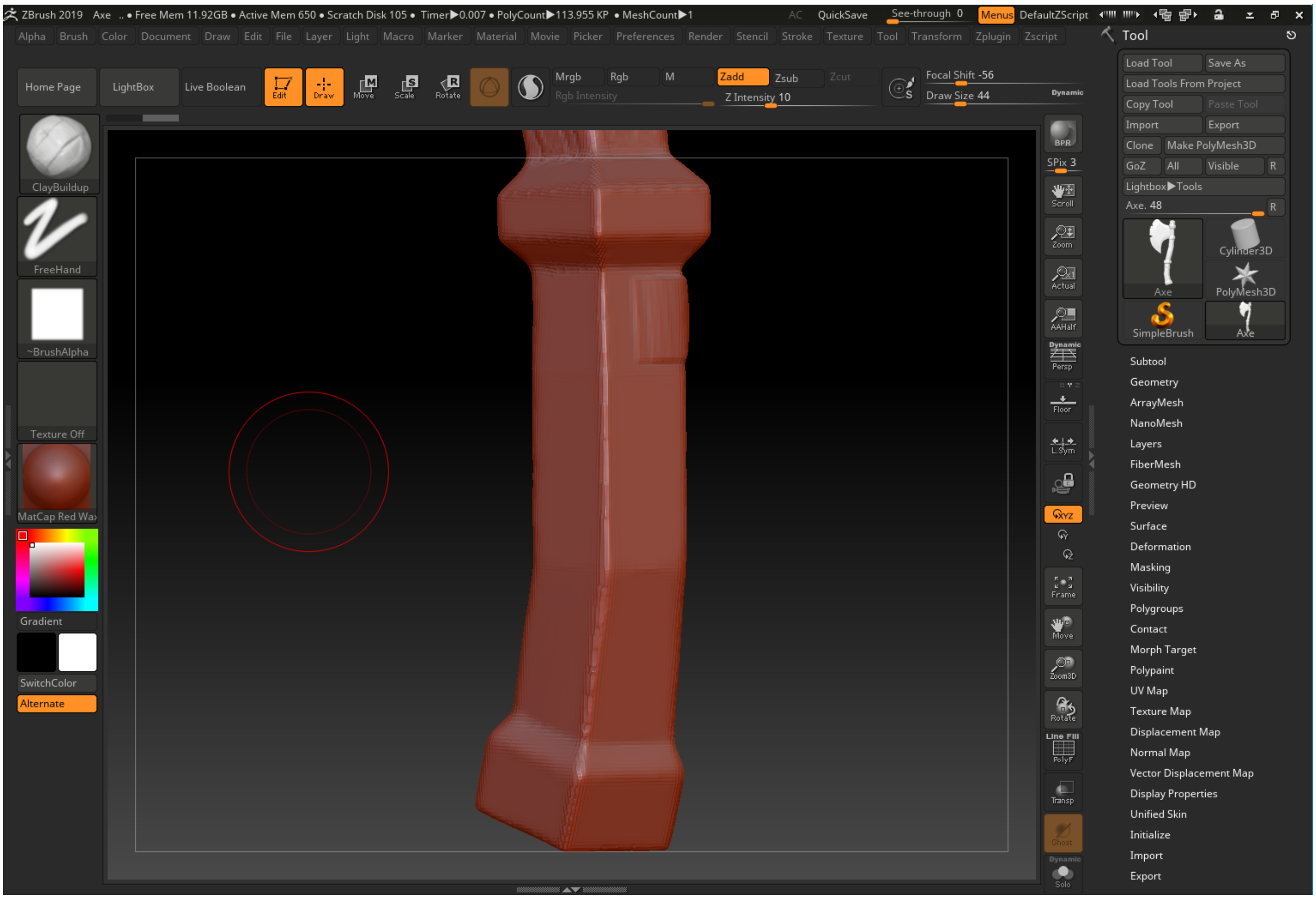
Adjust Z Intensity: 10



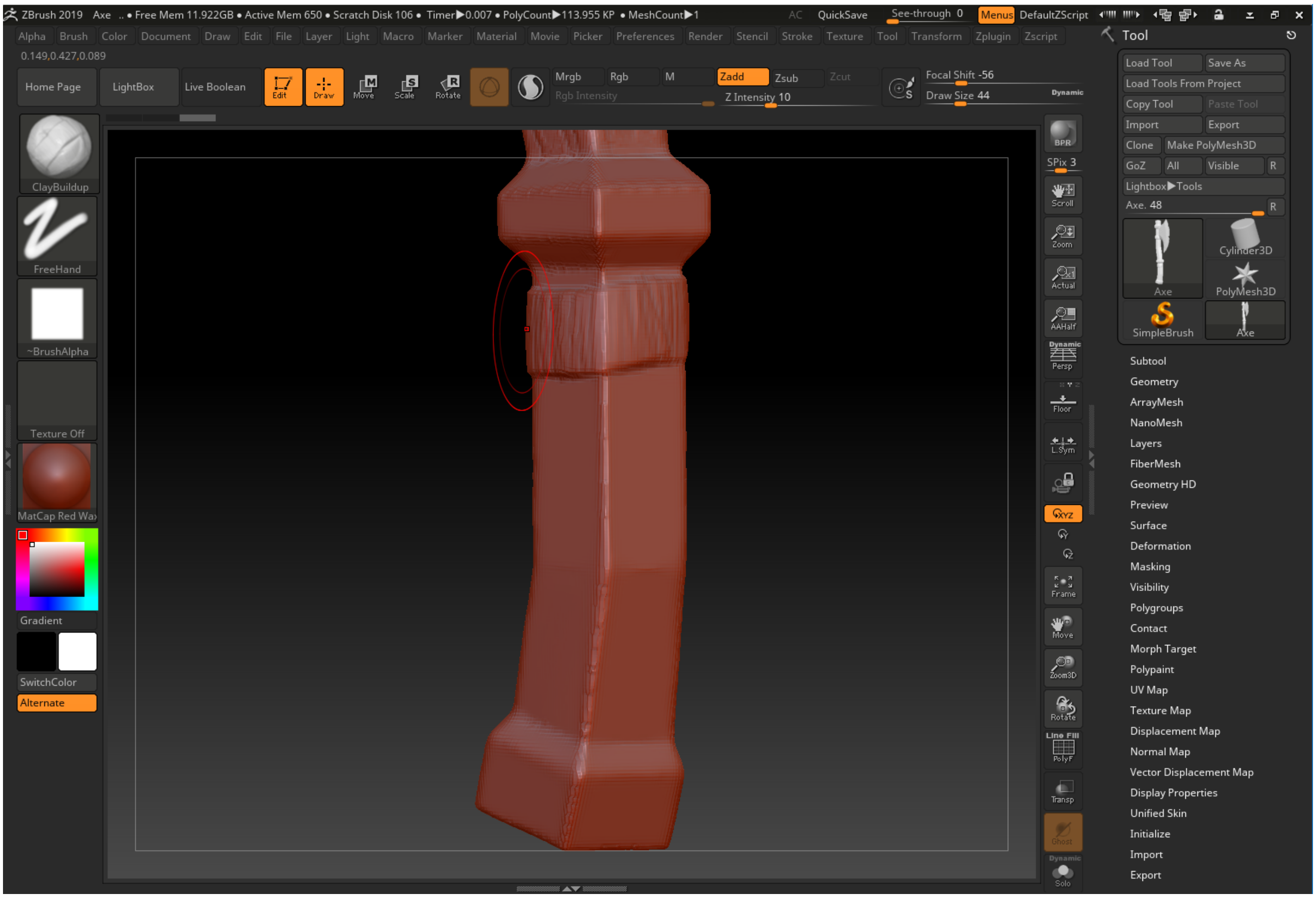
Now draw it, like cloth wrap handle



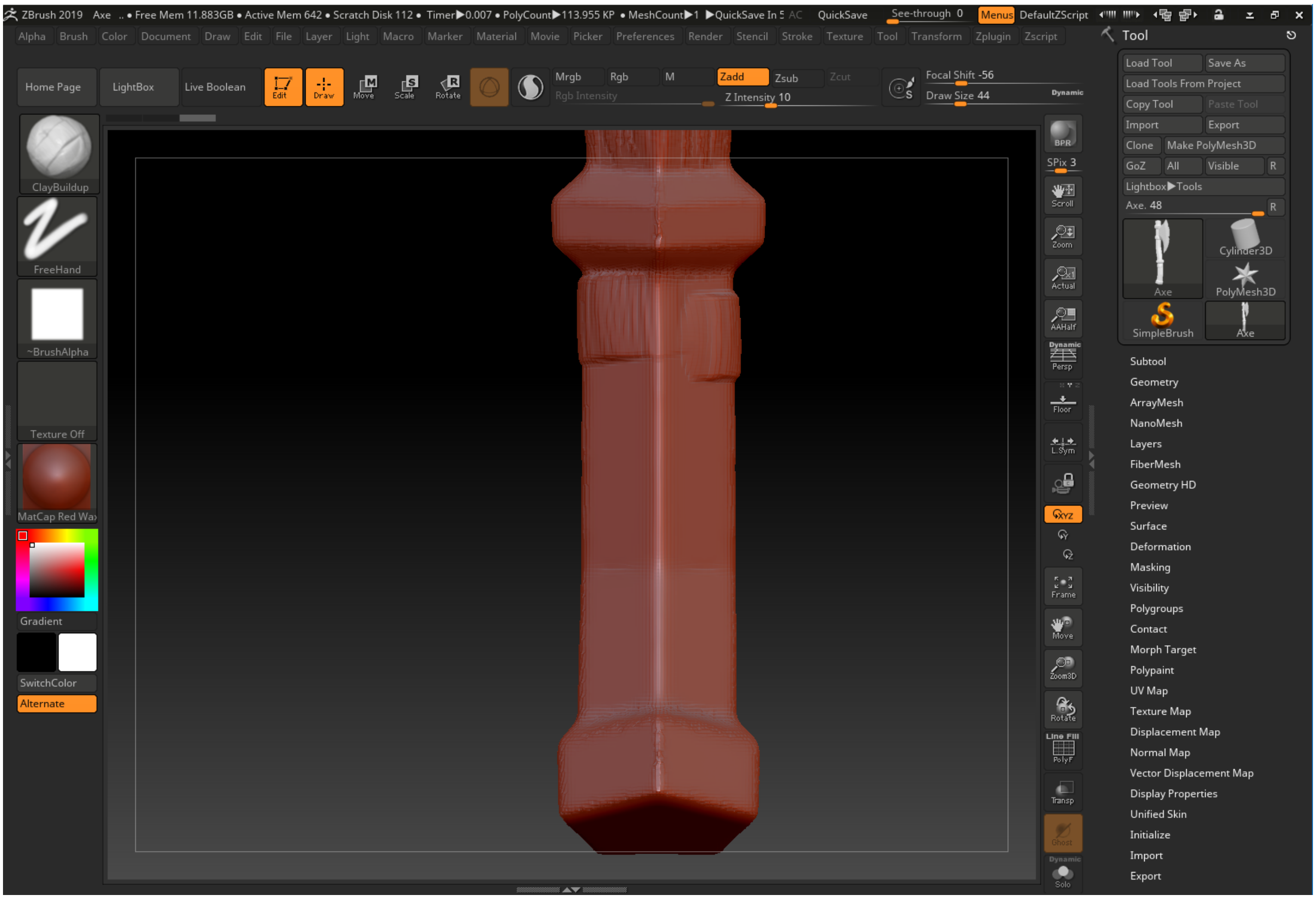
Rotate

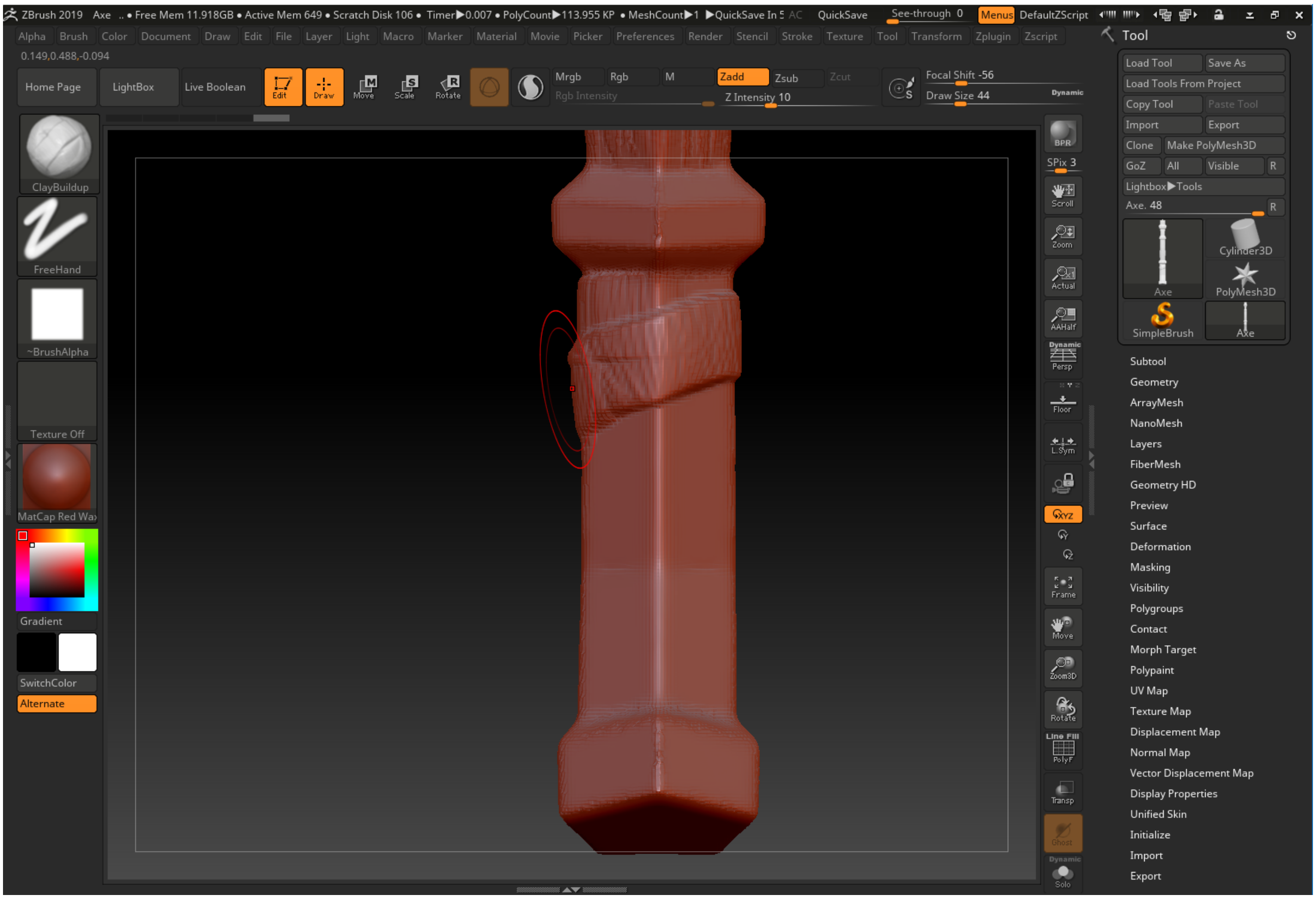


Draw it

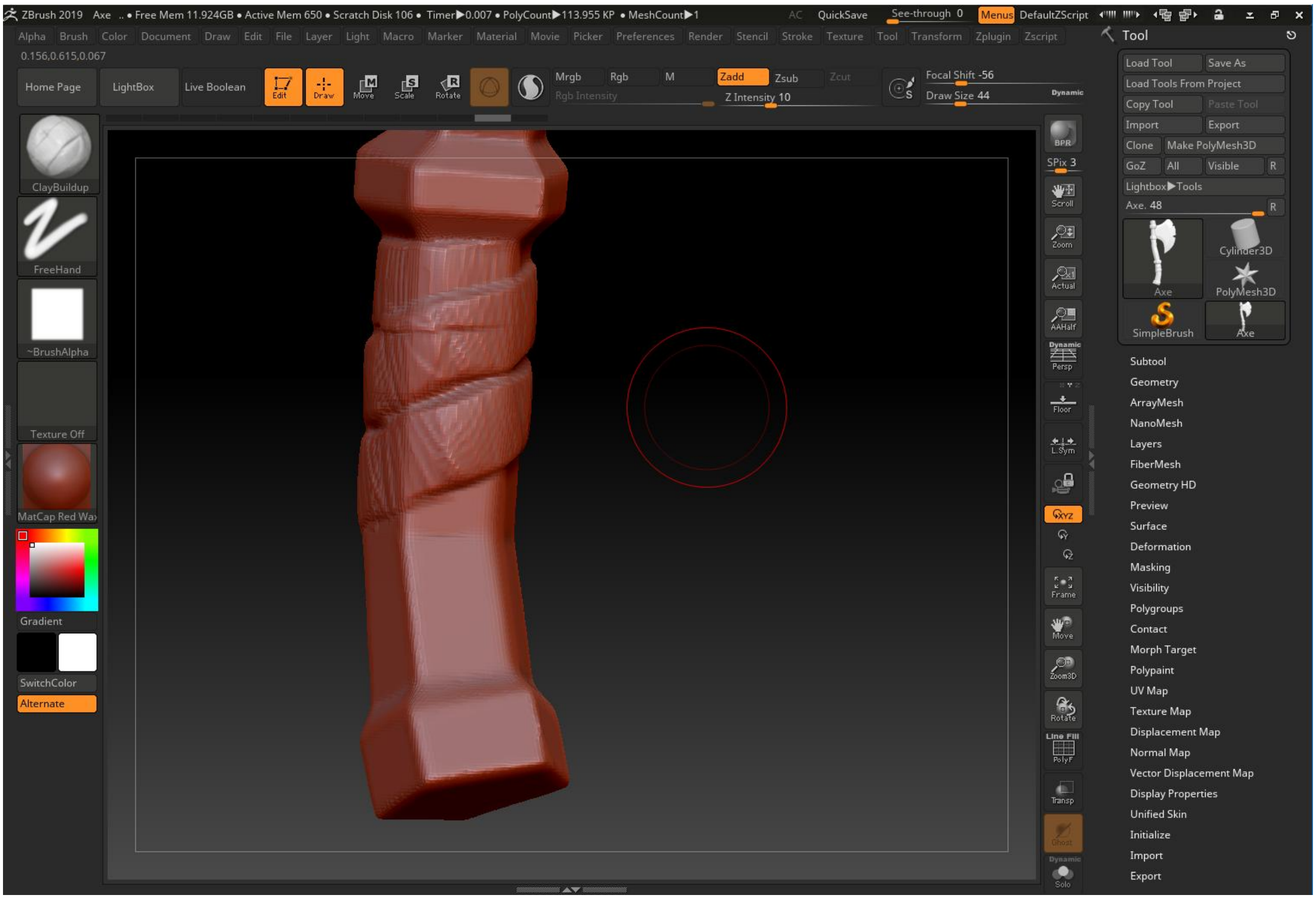


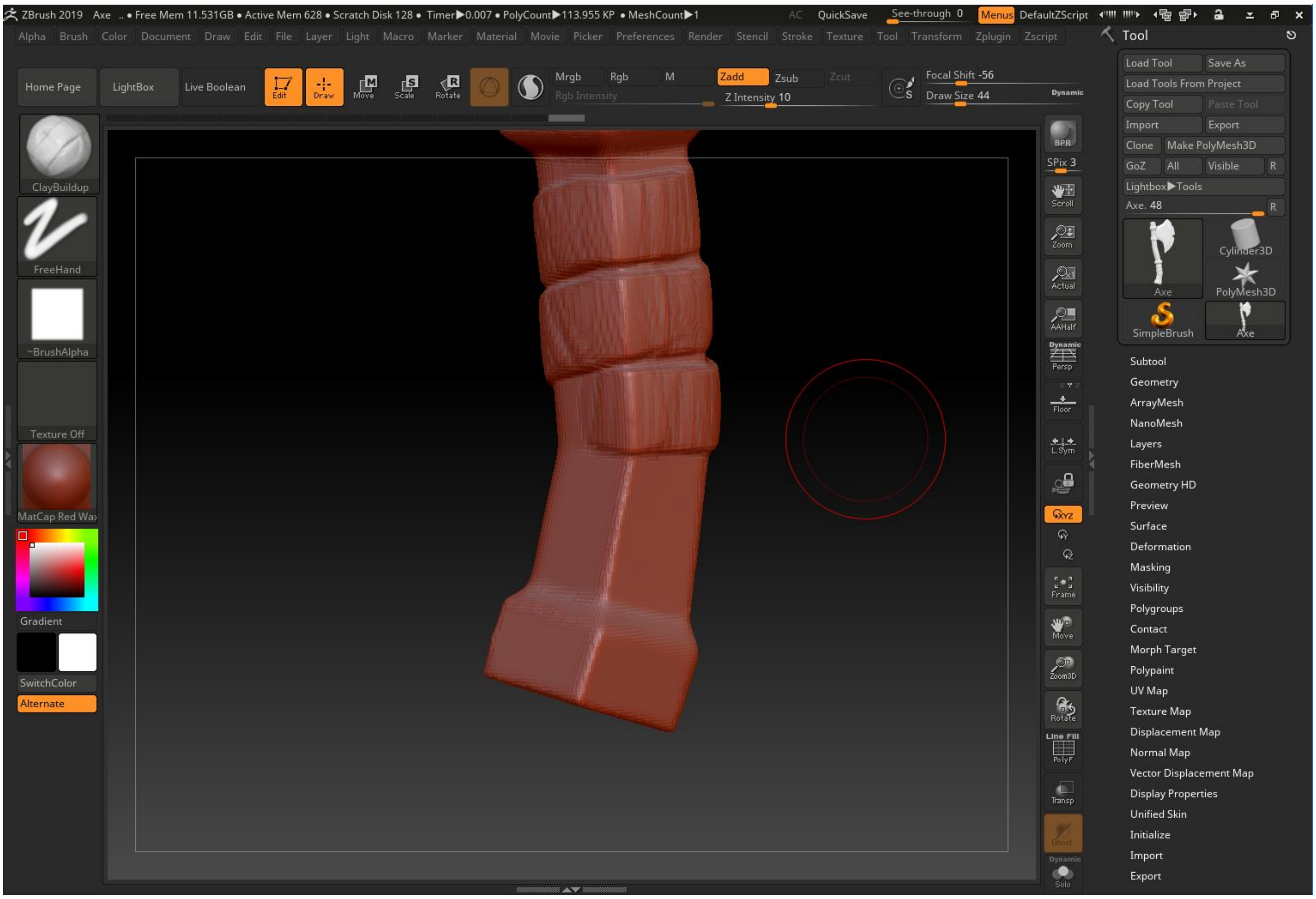
Repeat the same step, rotate and draw it



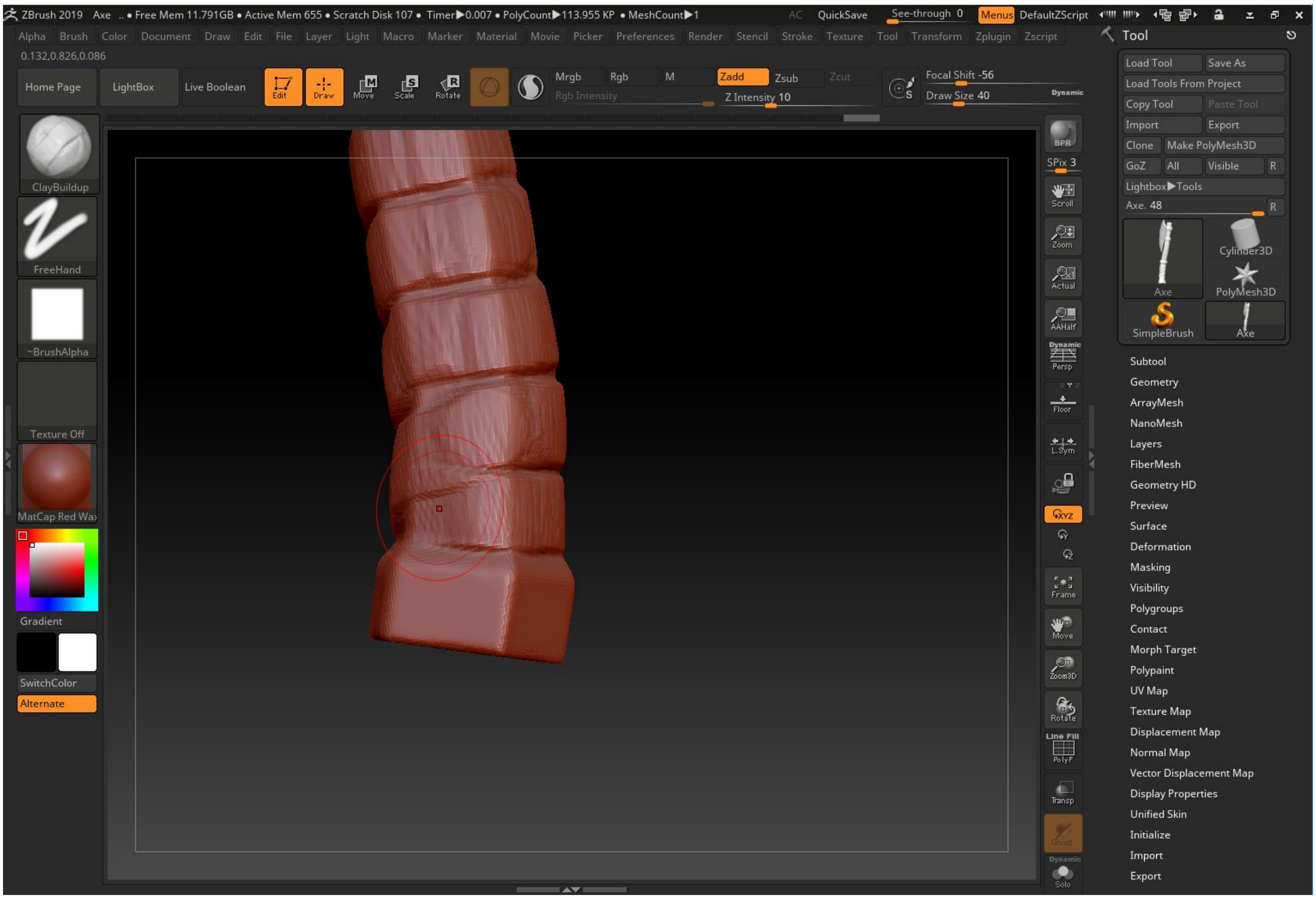


Keep repeat same step, rotate and draw it

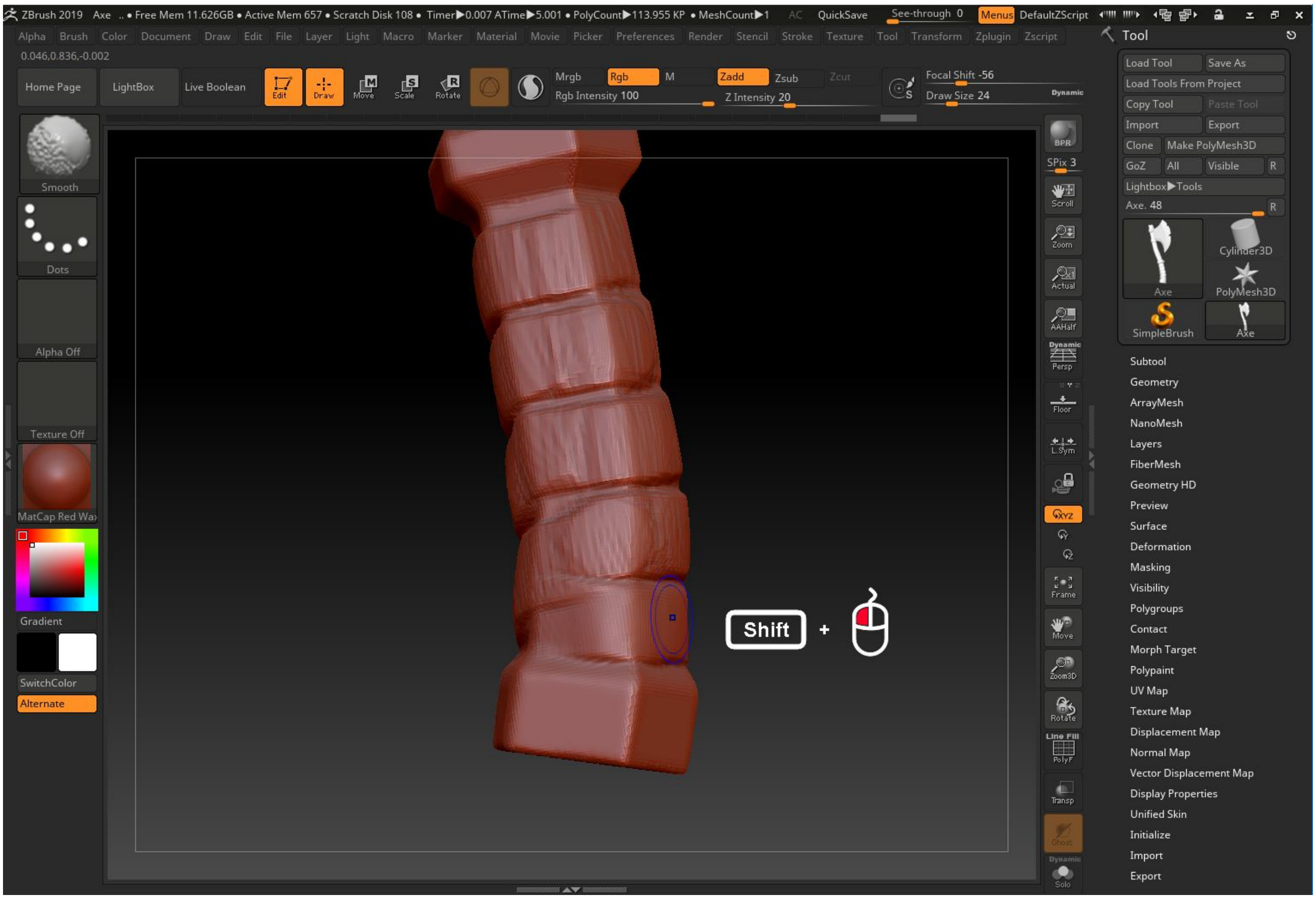




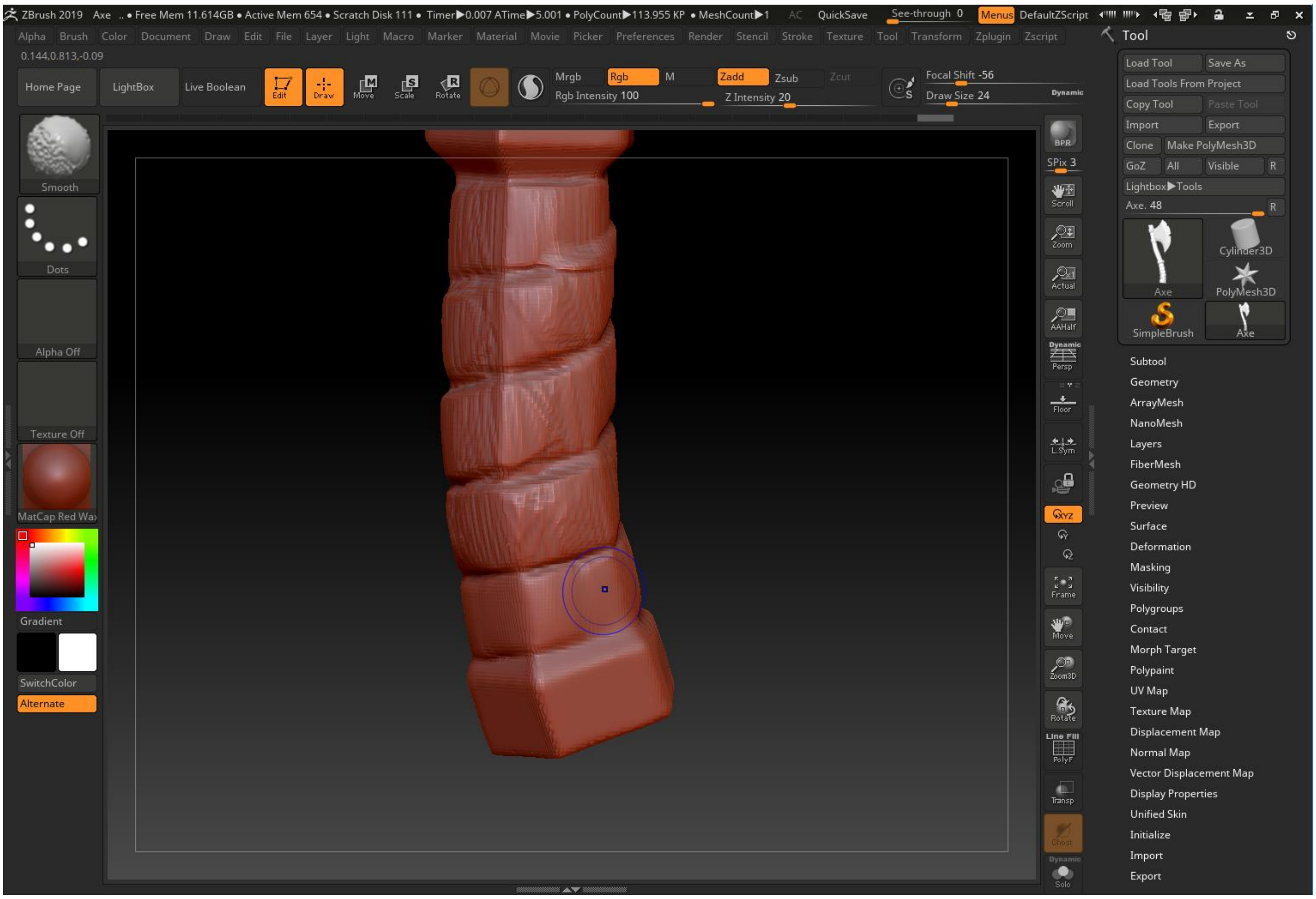
Done, now the handle are wrapped

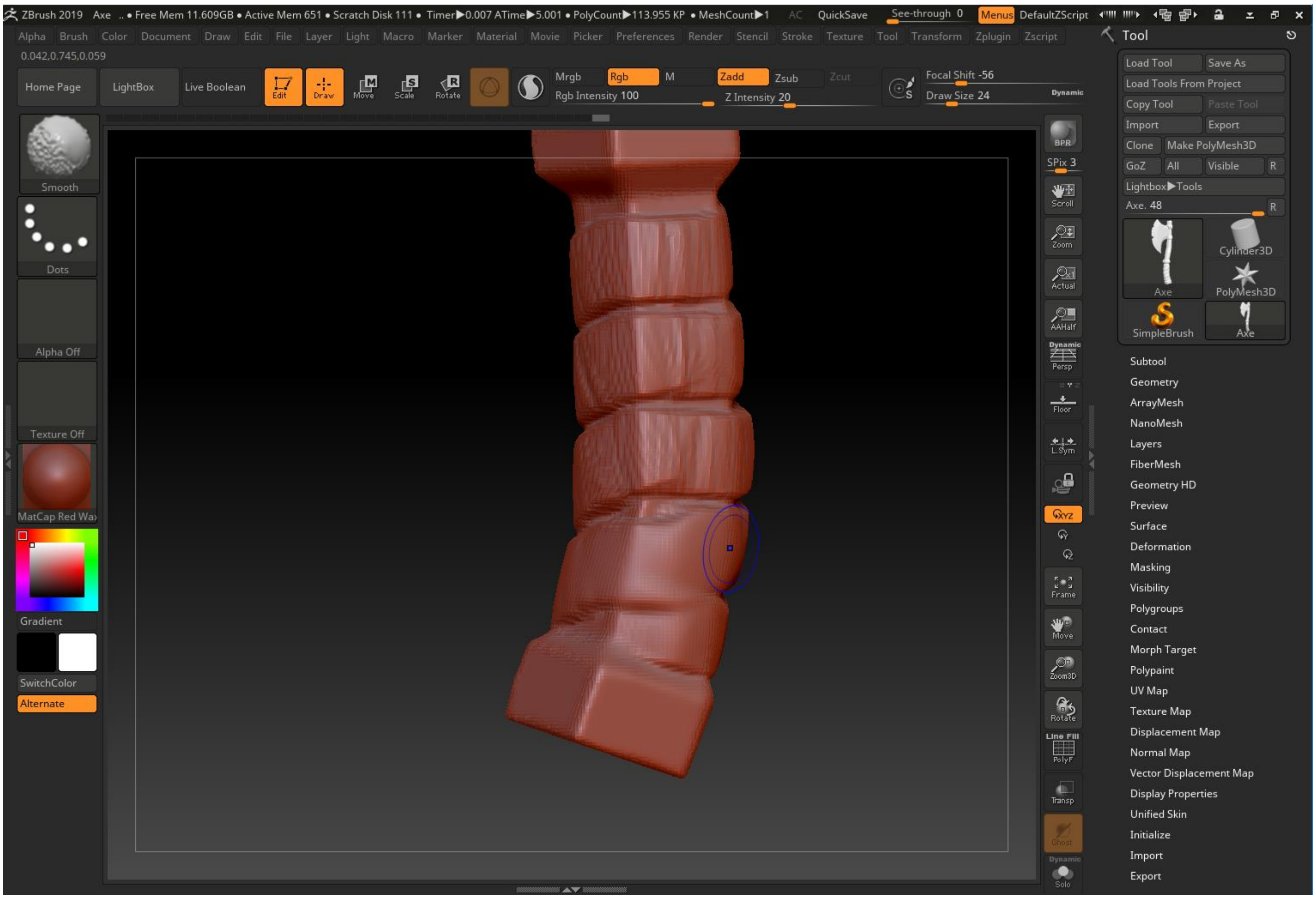


Hold shift and make the clothes smoother

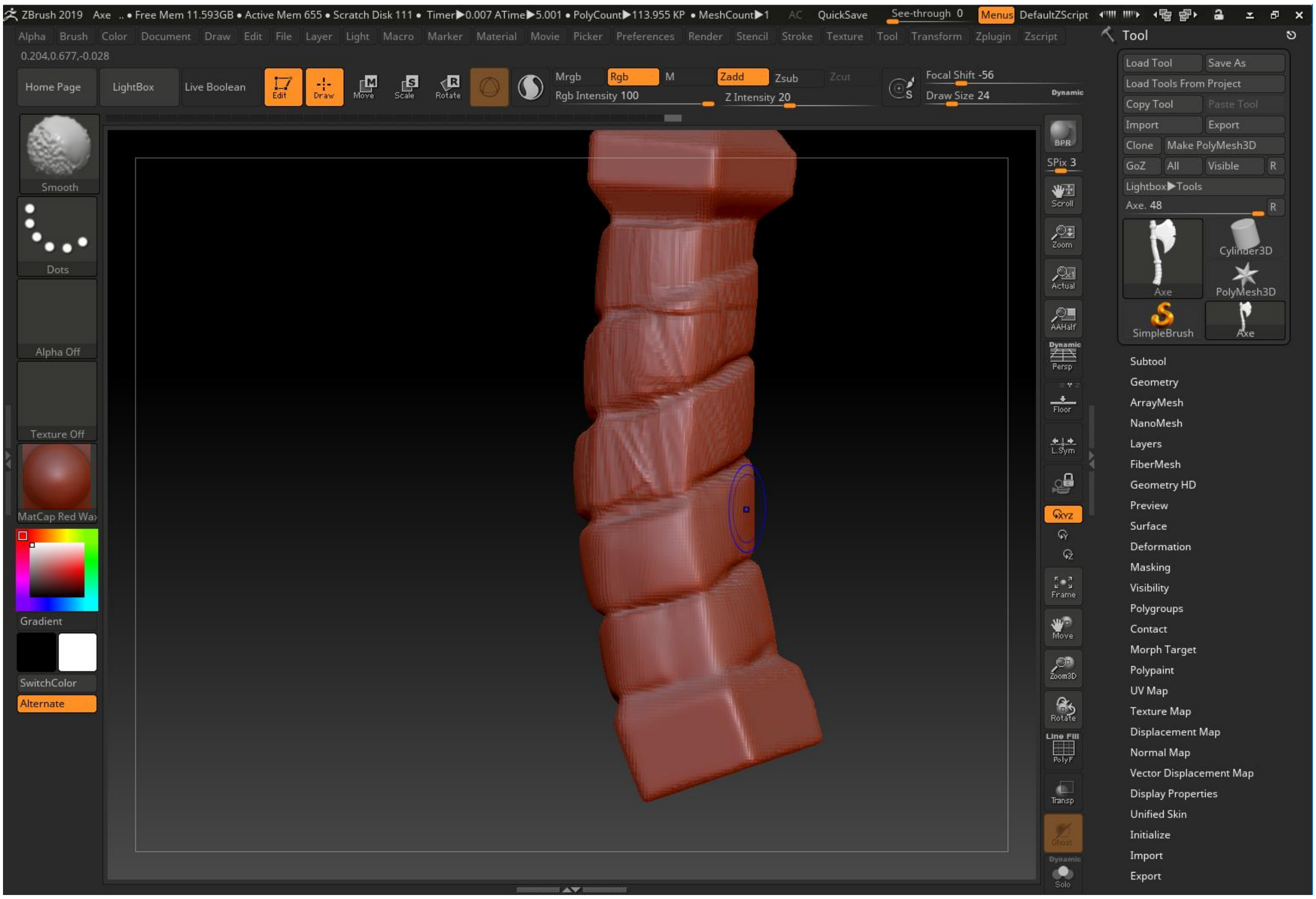


Rotate and keep smooth it

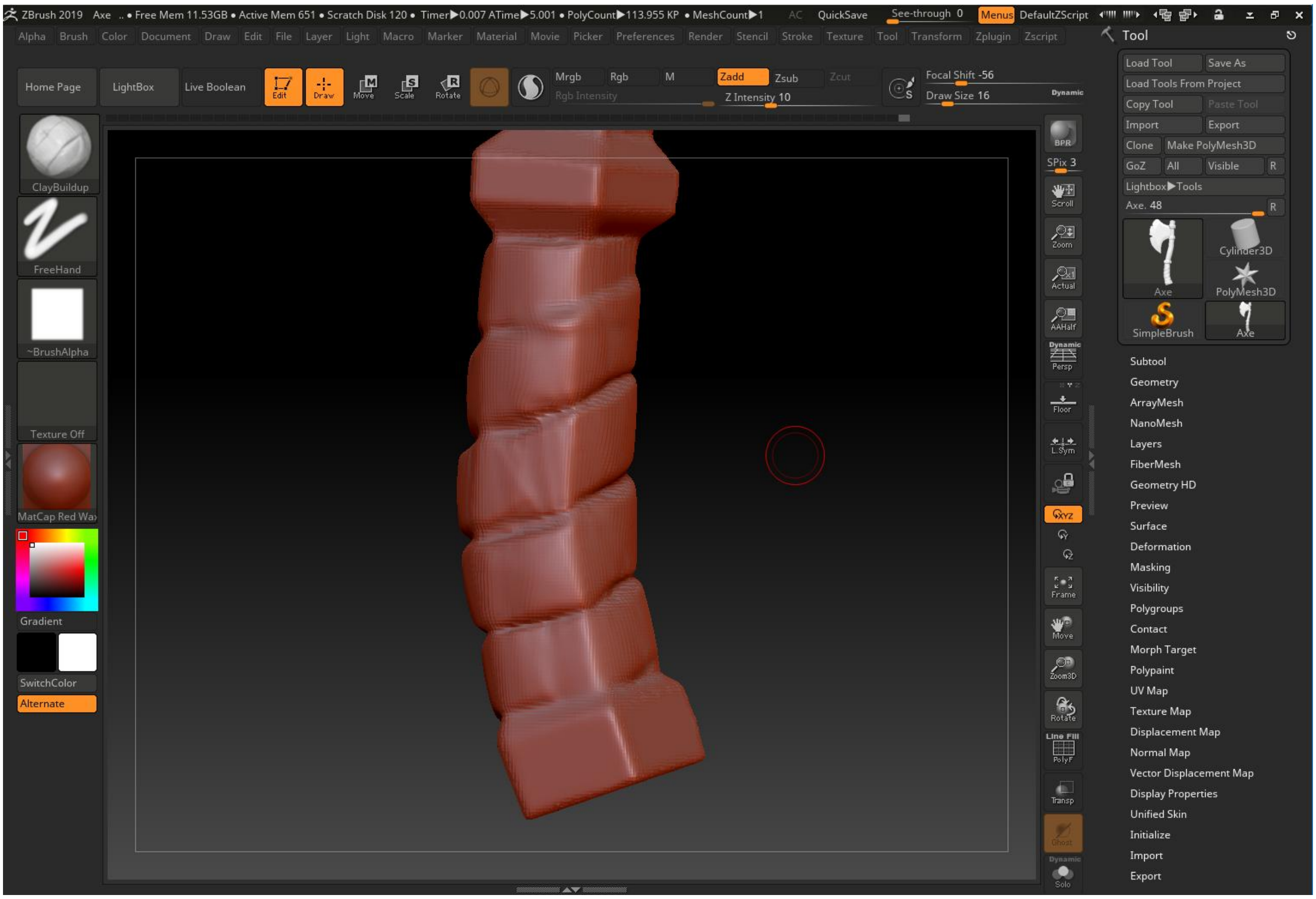




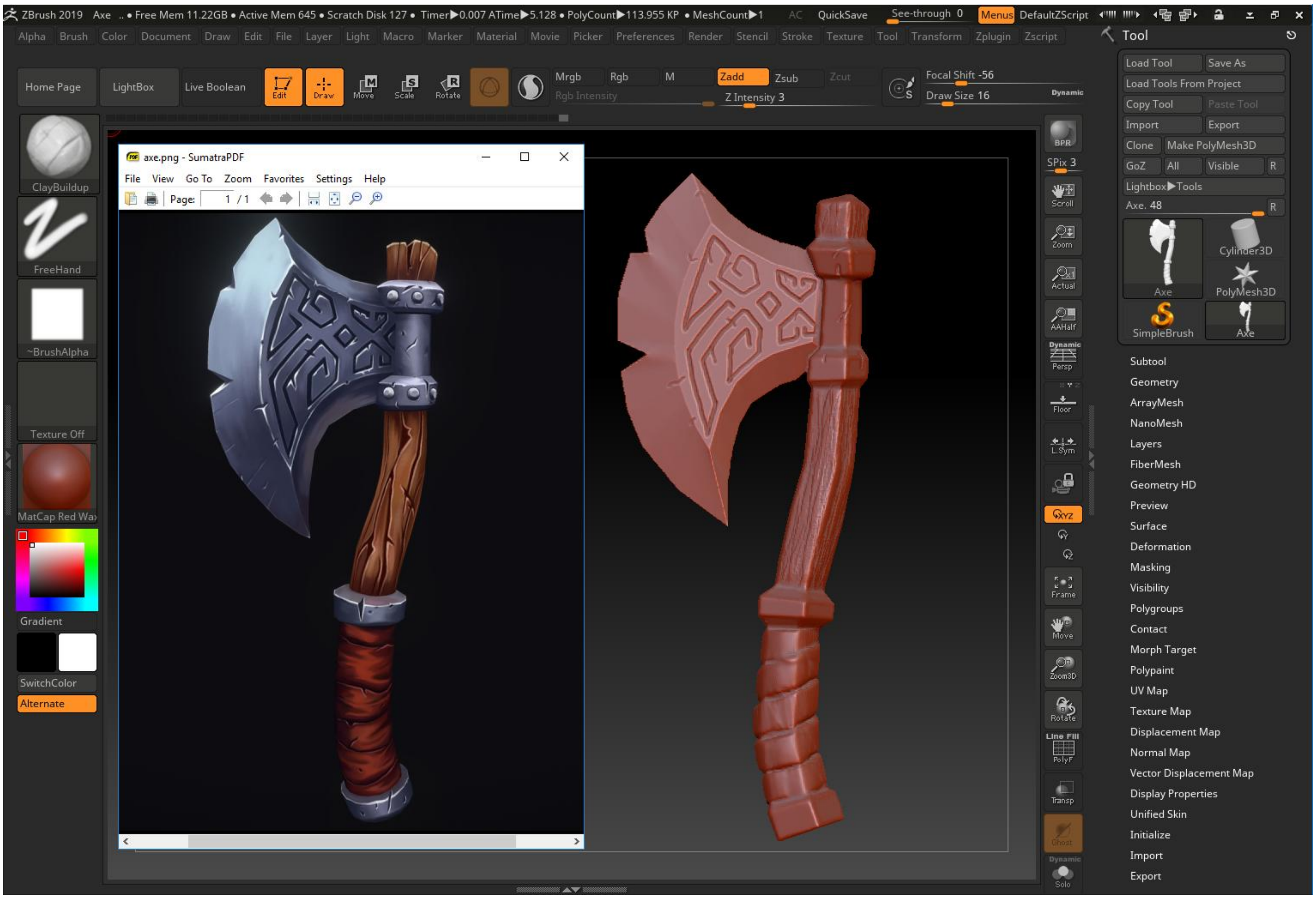
Repeat same step, smooth the handle part



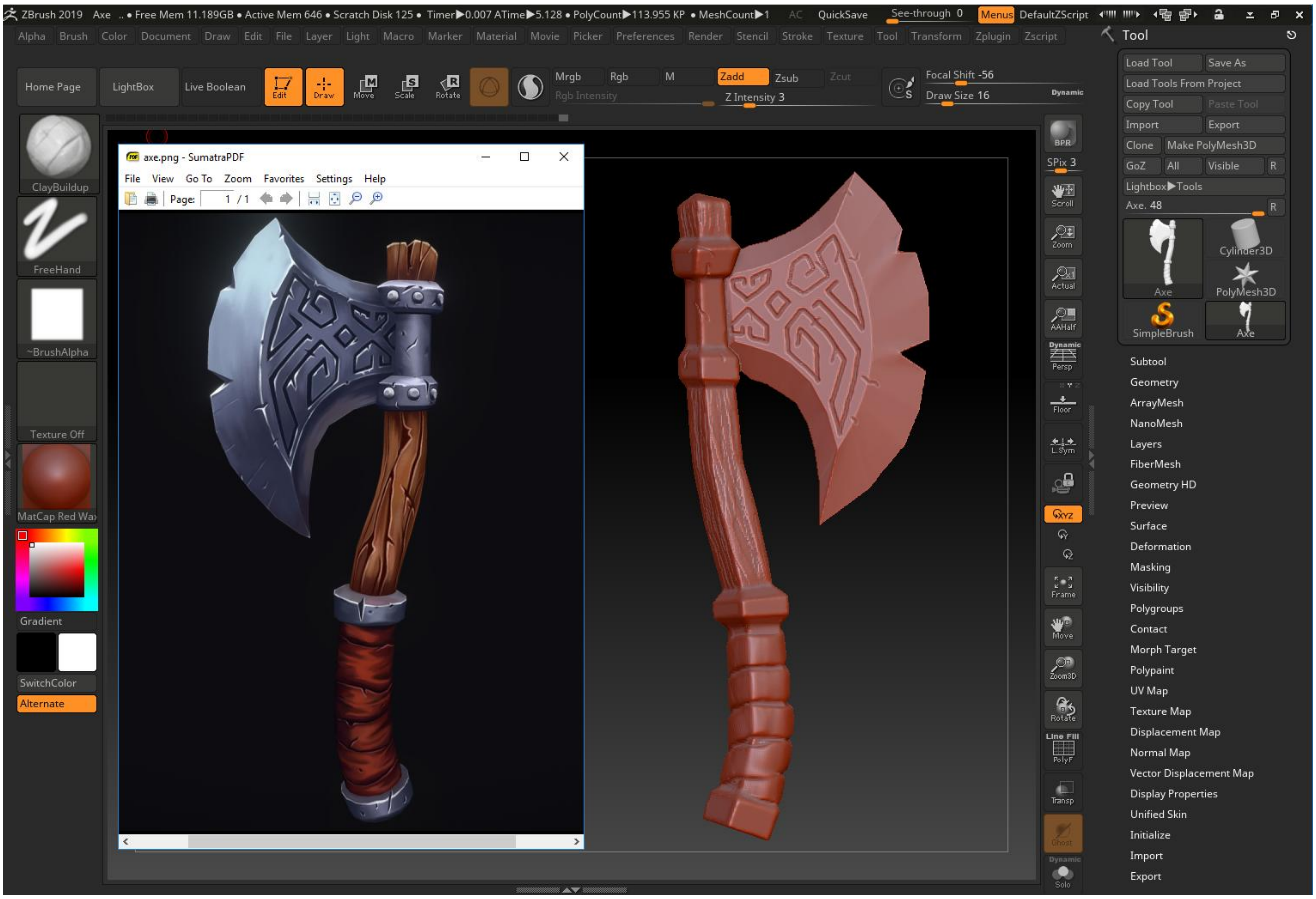
Done



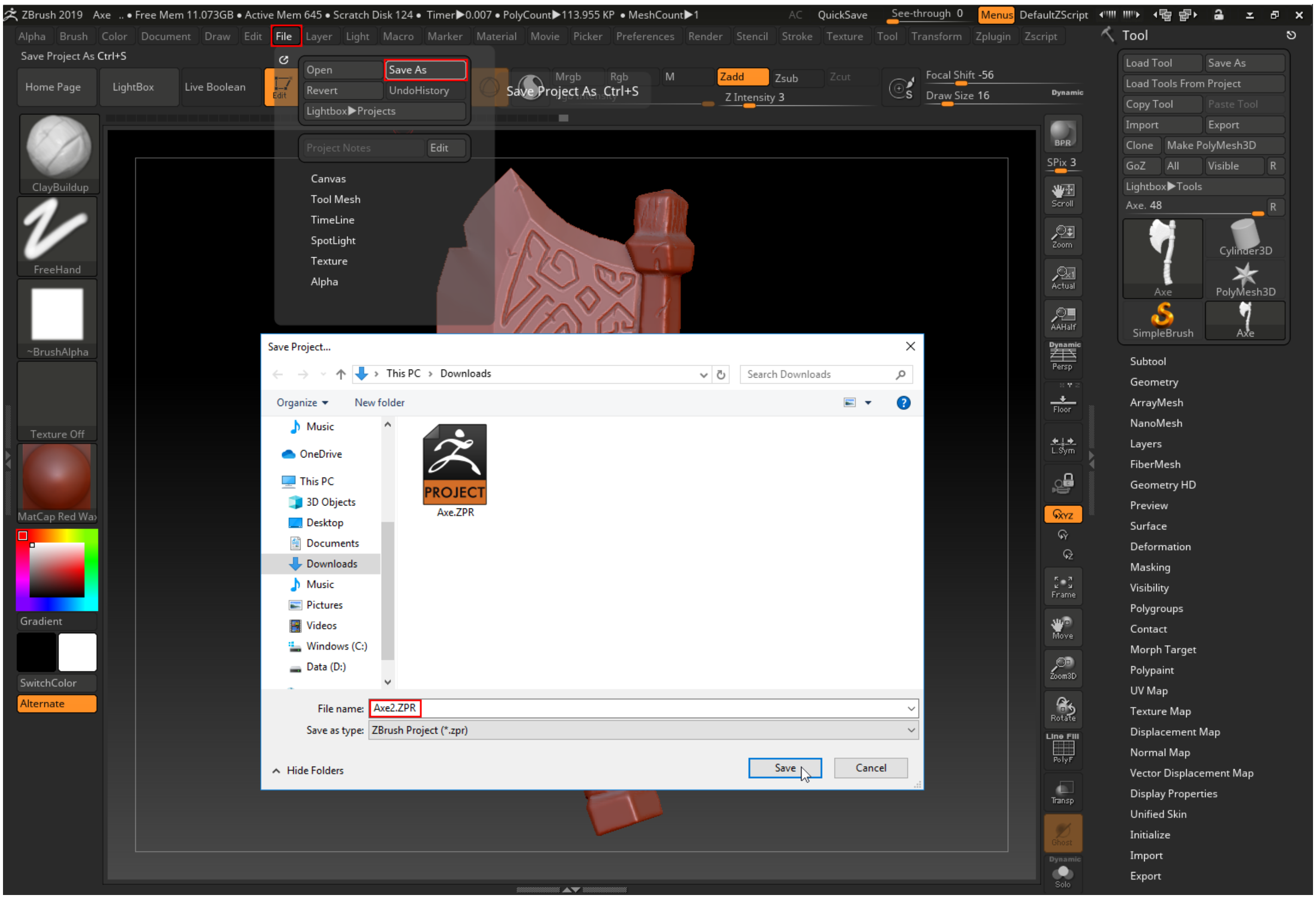
Done here is axe front



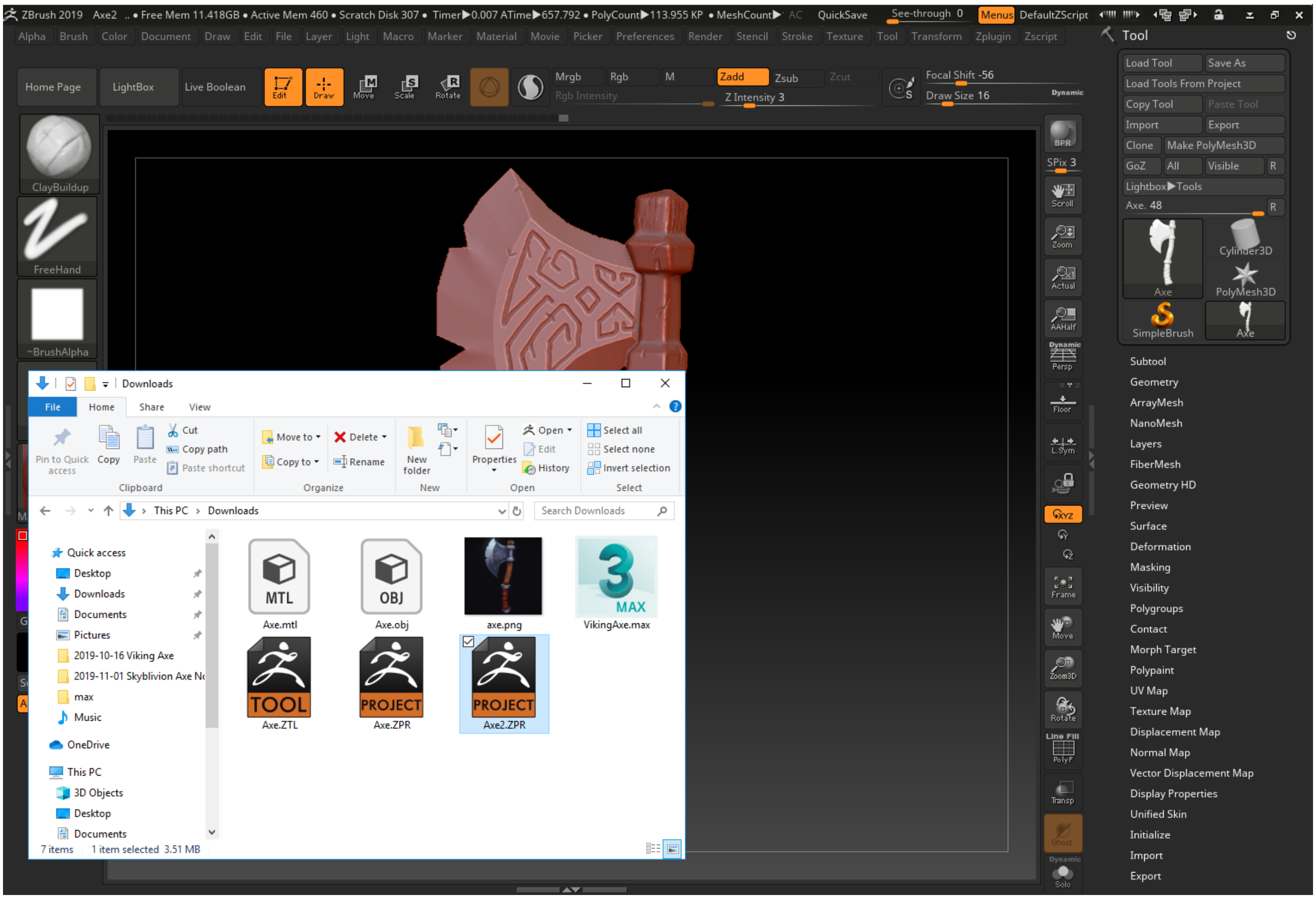
Rotate and check axe behind



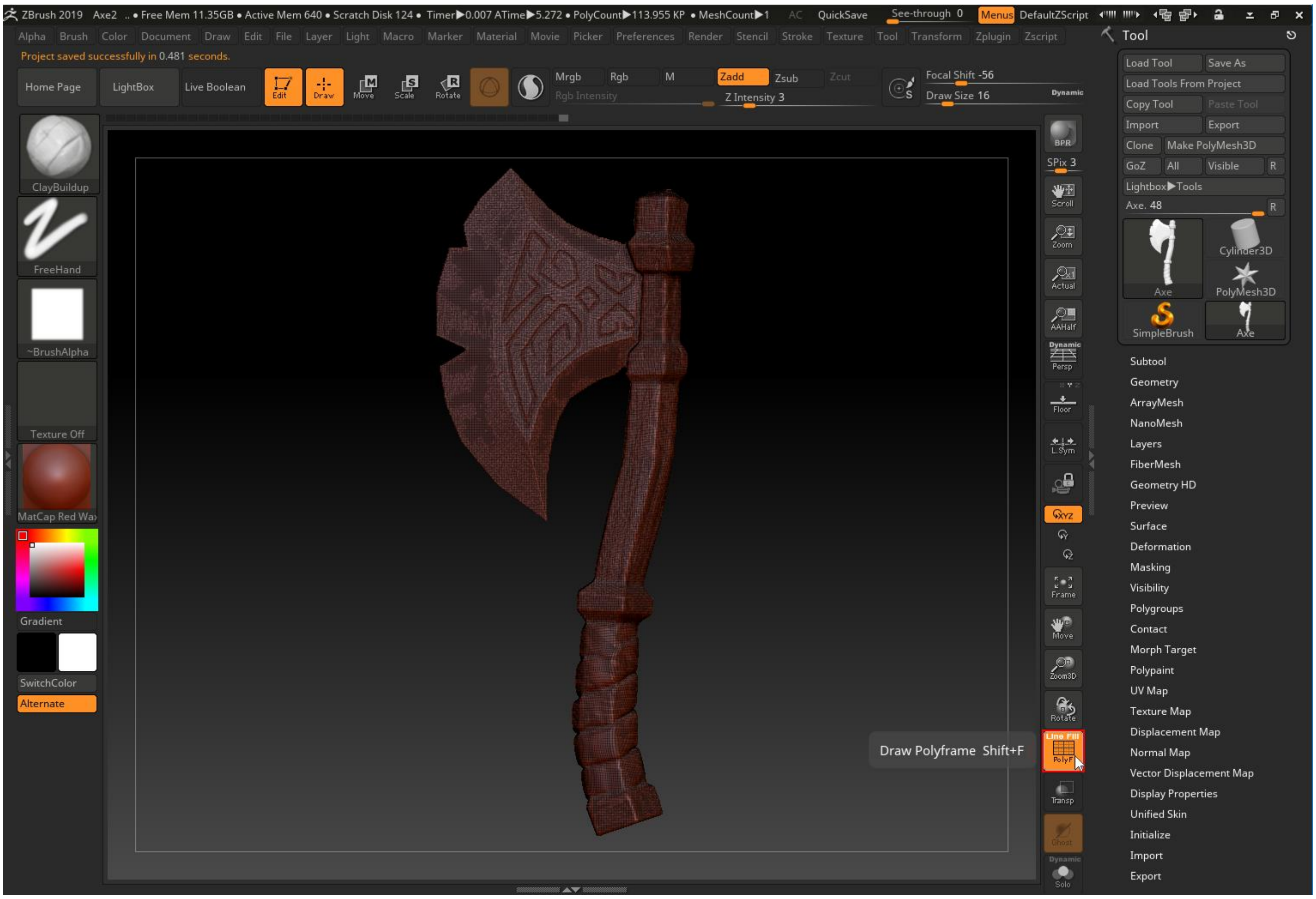
Save it, also save another one as Axe2.ZPR (for decimate master)



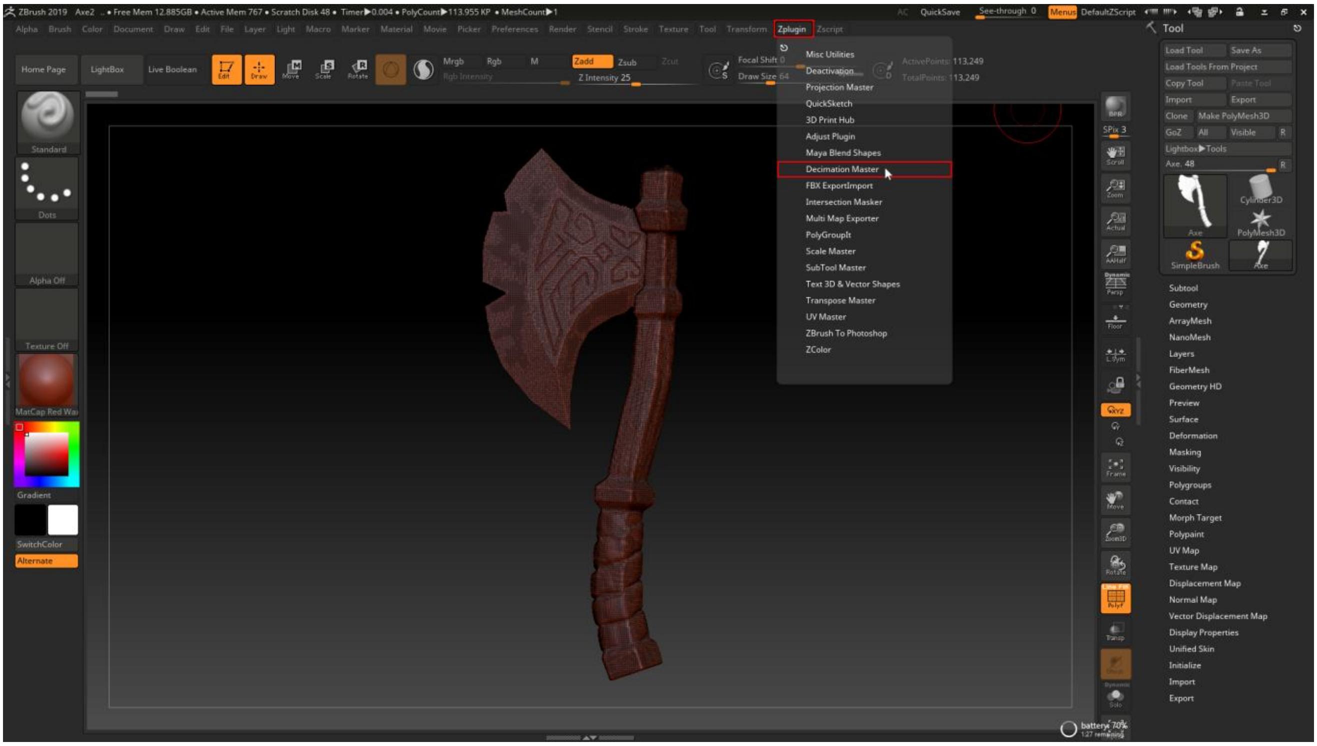
And you can see we have Axe.ZPR and Axe2.ZPR



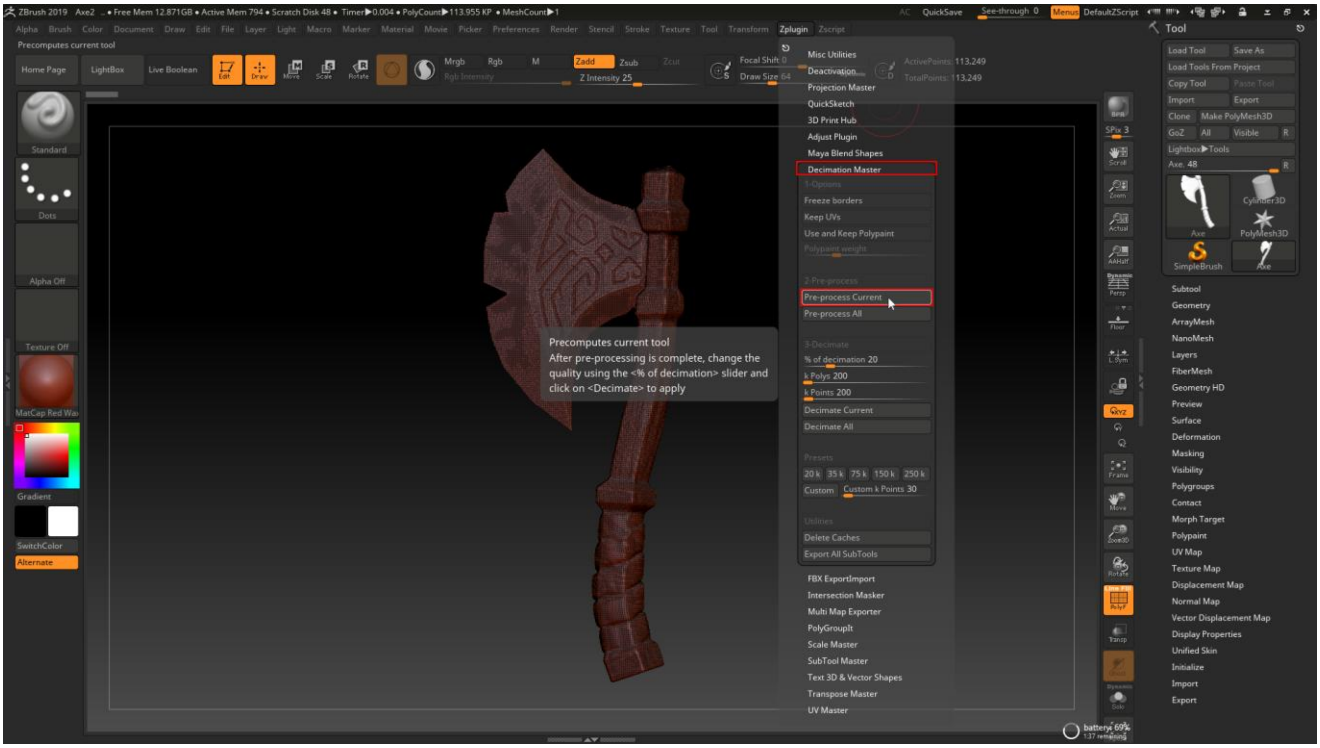
Enable “Line Fill”



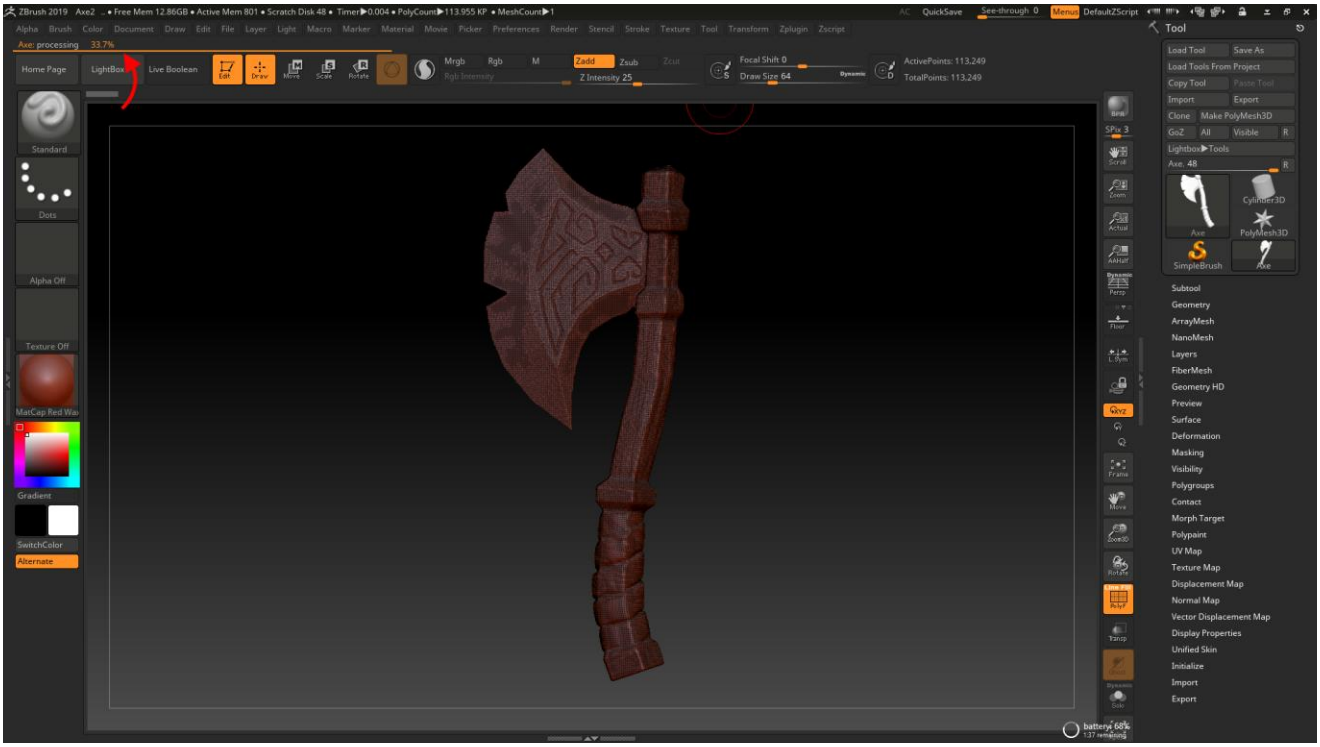
Click Zplugin → Decimation Master (to reduce poly count)



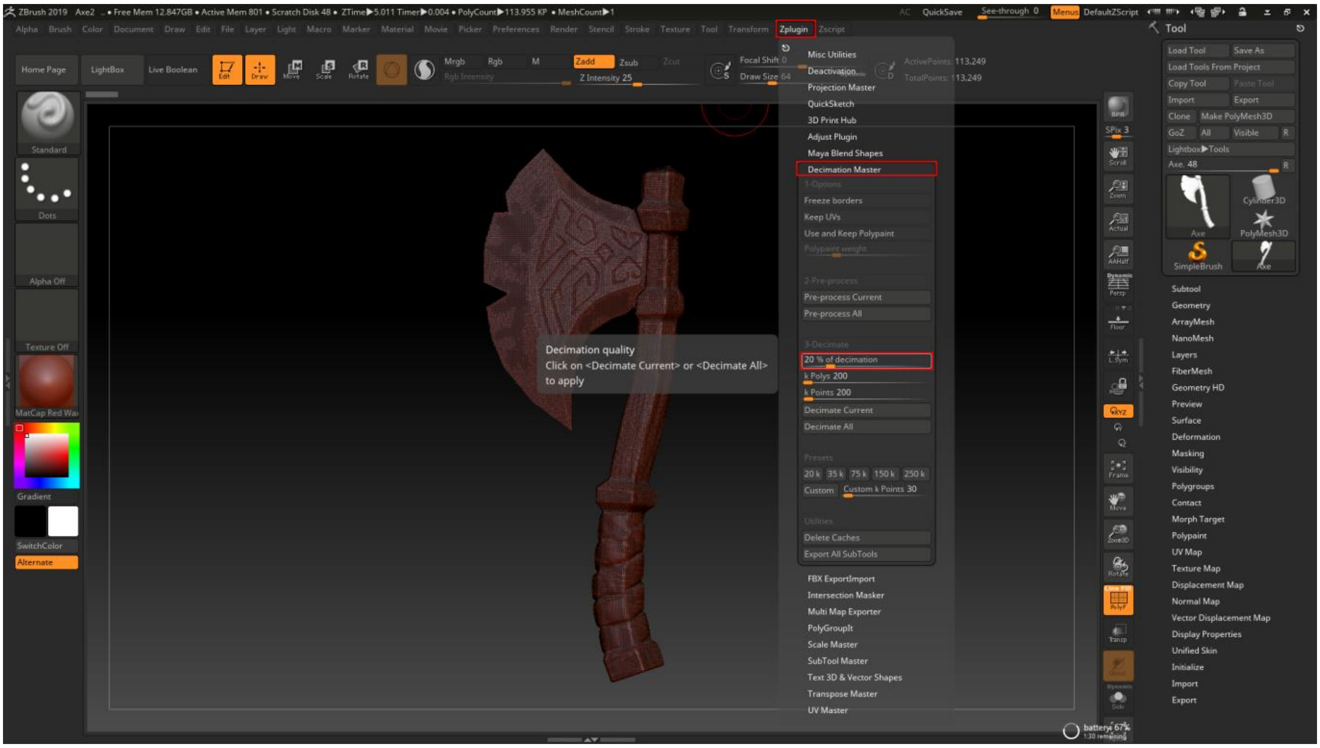
Click “Pre-process Current”



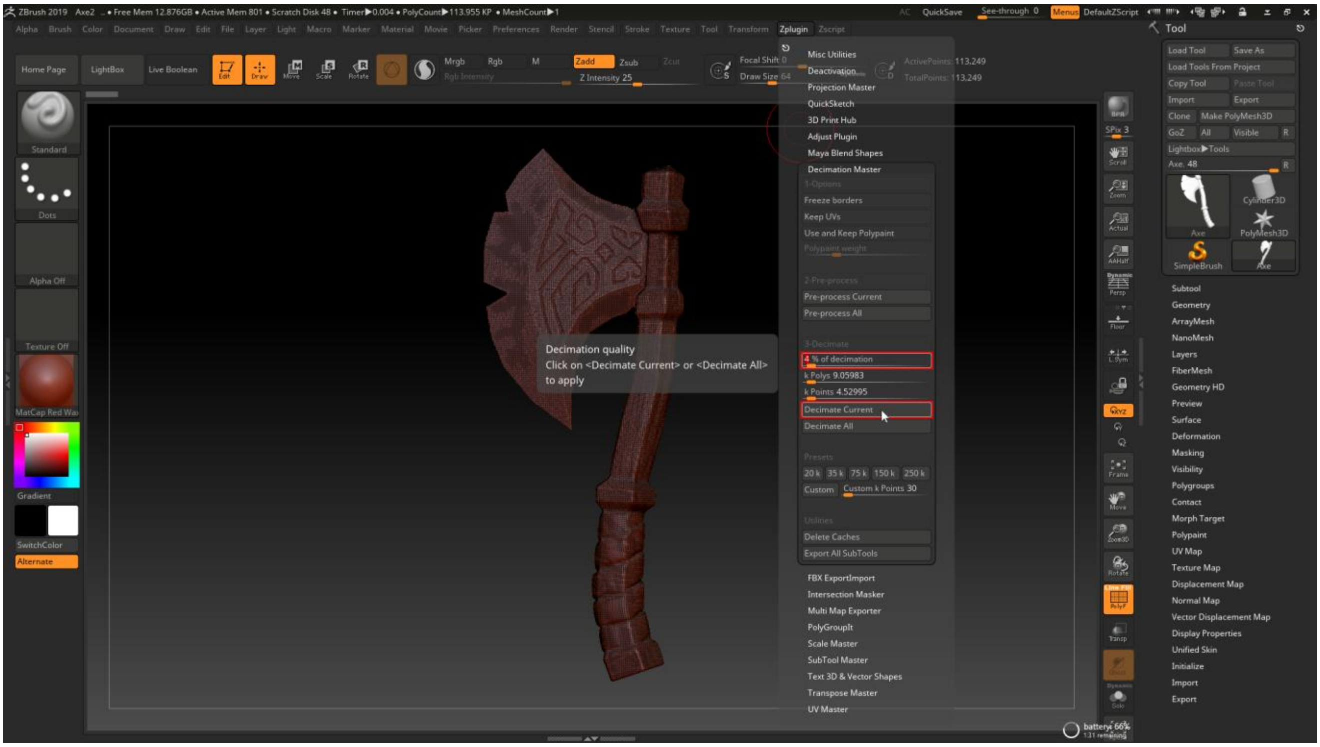
Wait it finish processing…



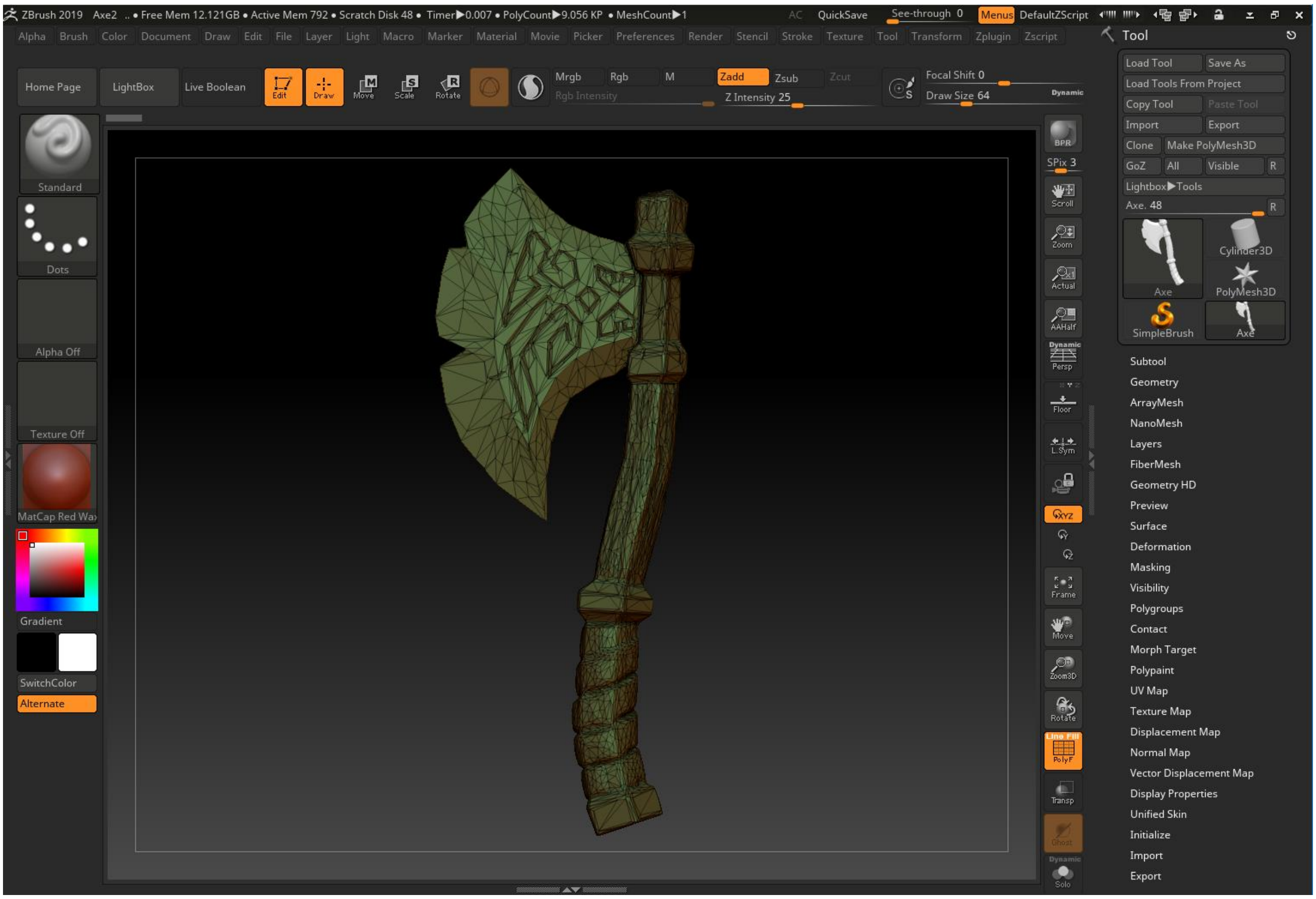
Adjust decimation quality (default: 20%)



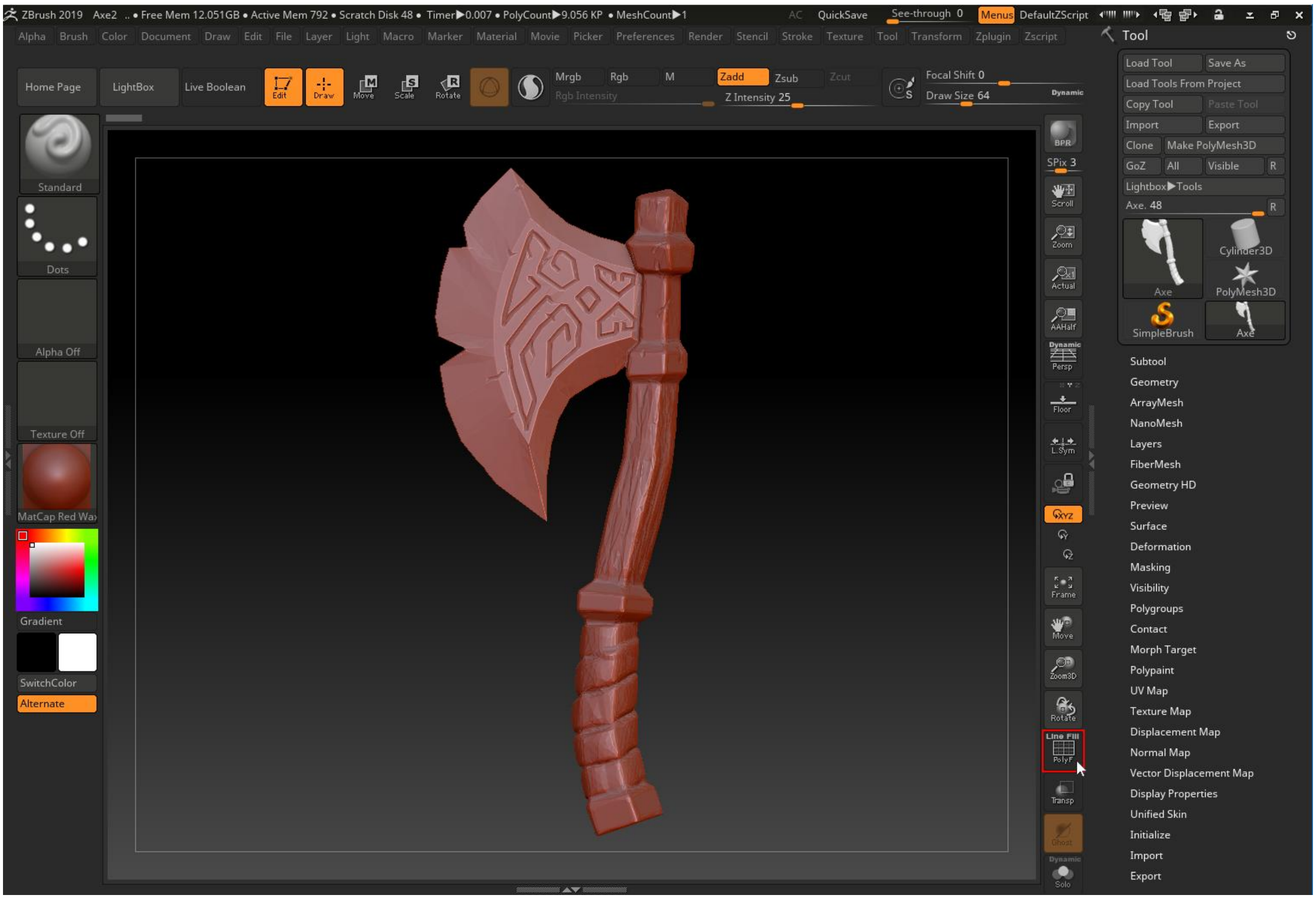
Adjust it to 4%, and click “Decimate Current”



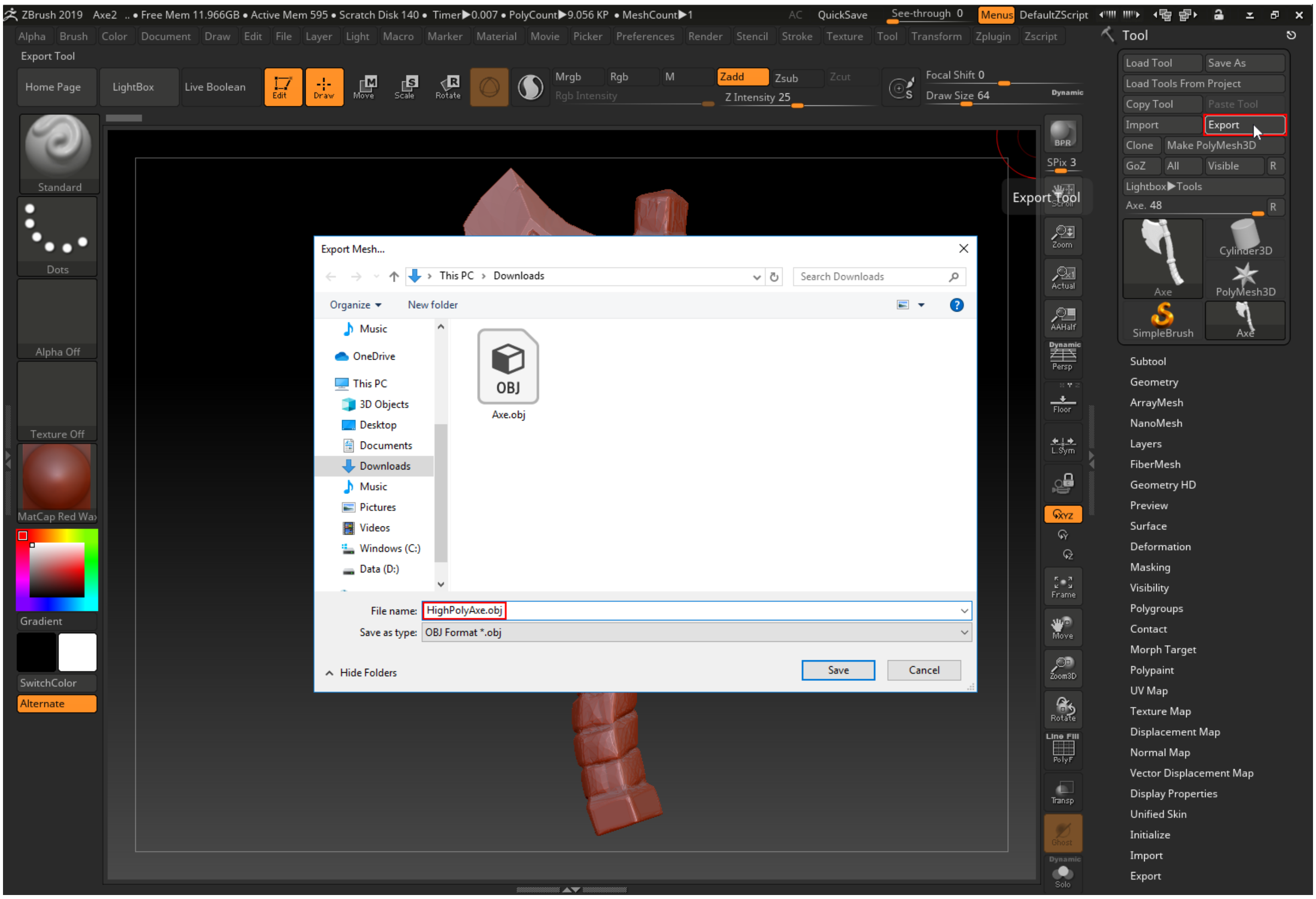
Here is after click “Decimate Current”



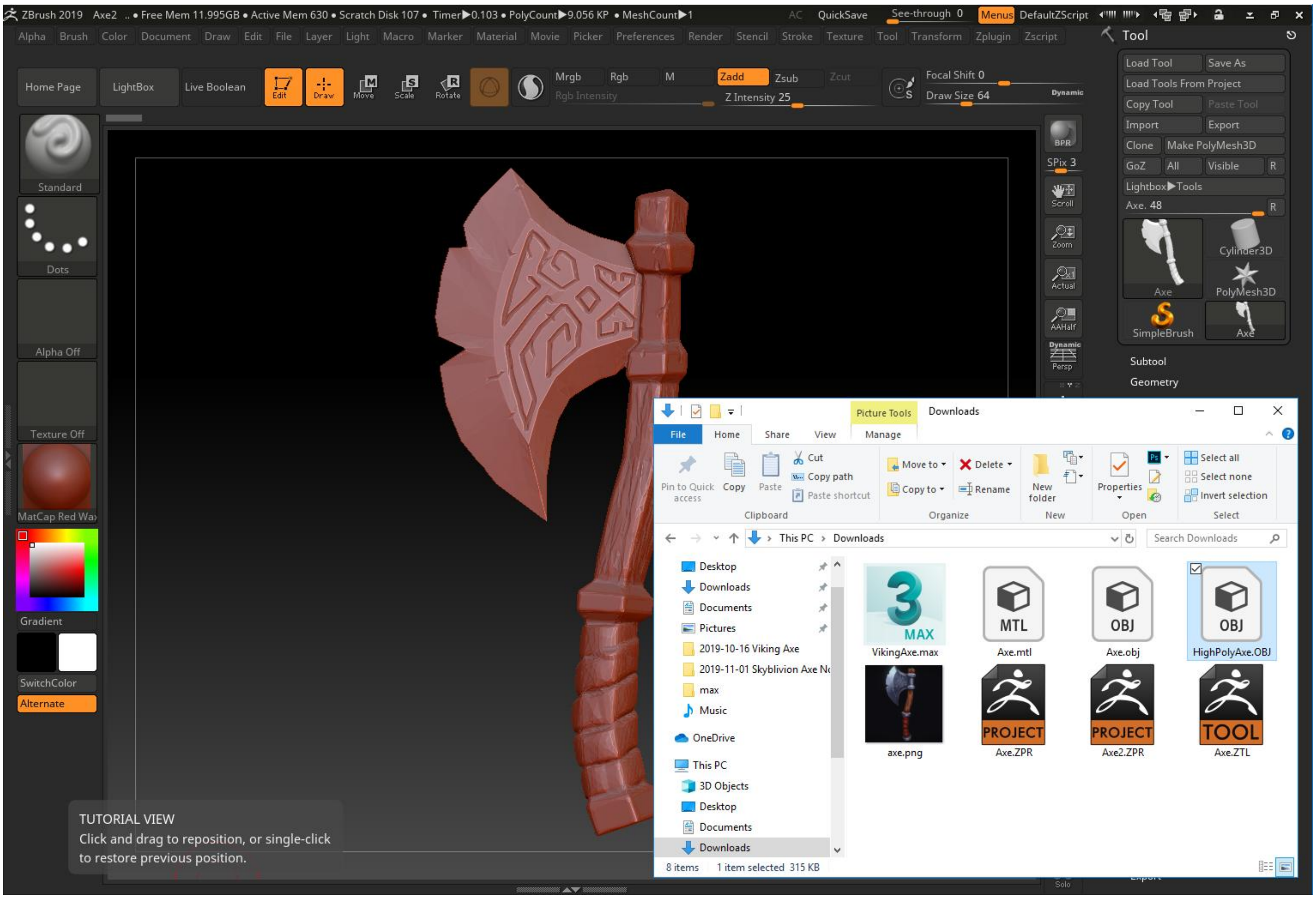
Disable “Line Fill” and check around your axe



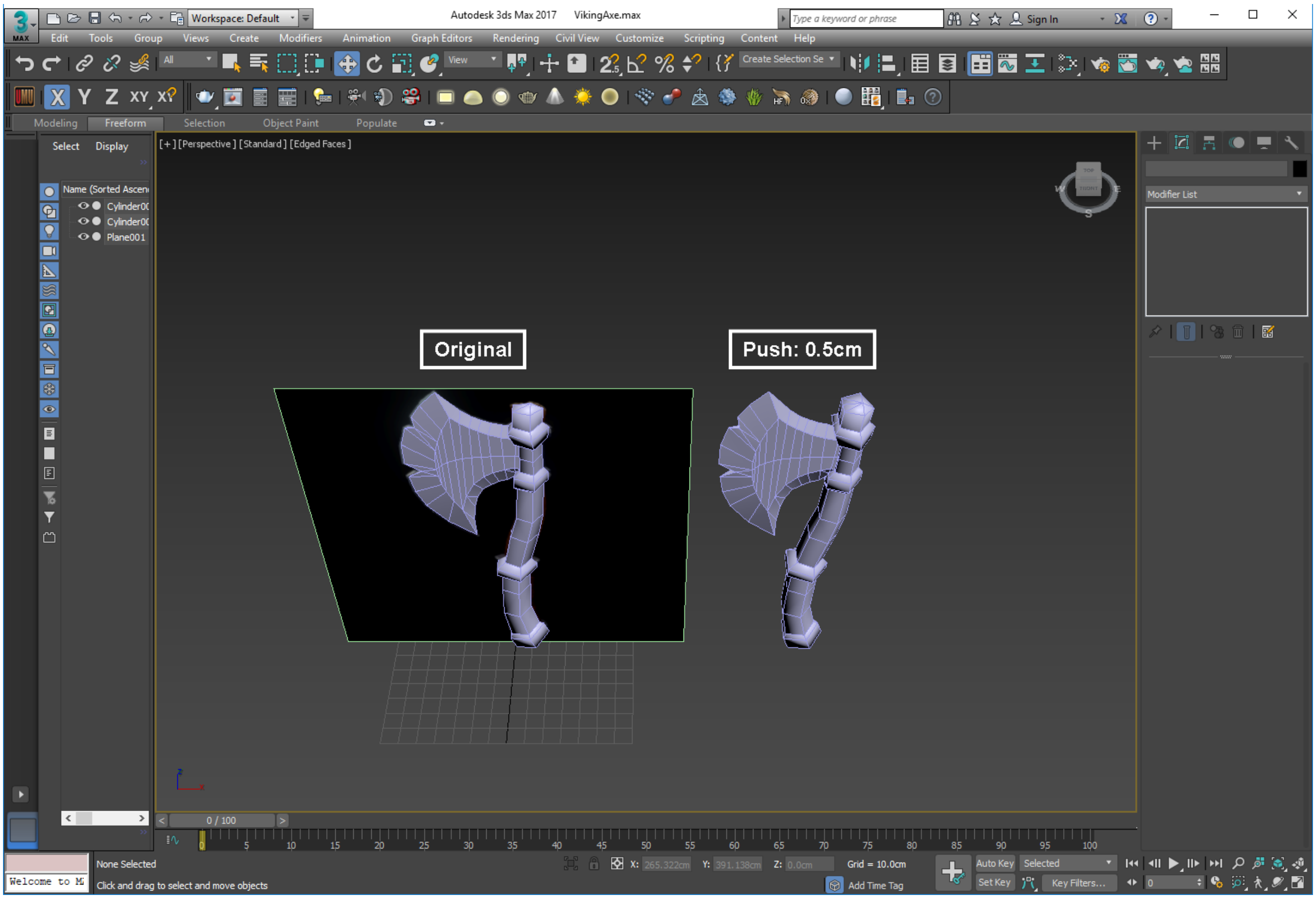
Click “Export” and save as “HighPolyAxe.obj”



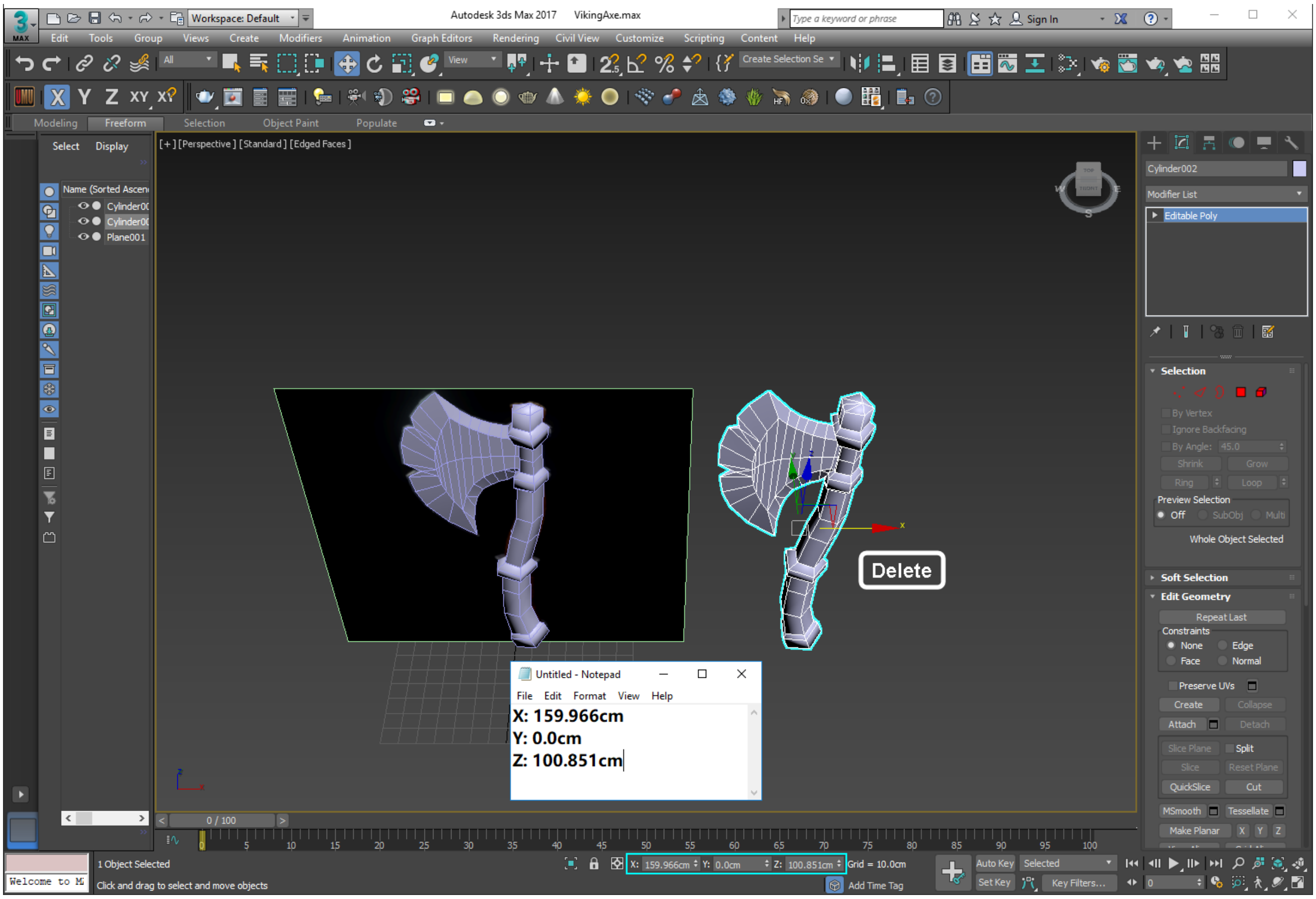
Now we have 2 obj file, Axe.obj (Lowpoly) and HighPolyAxe.obj (Zbrush)



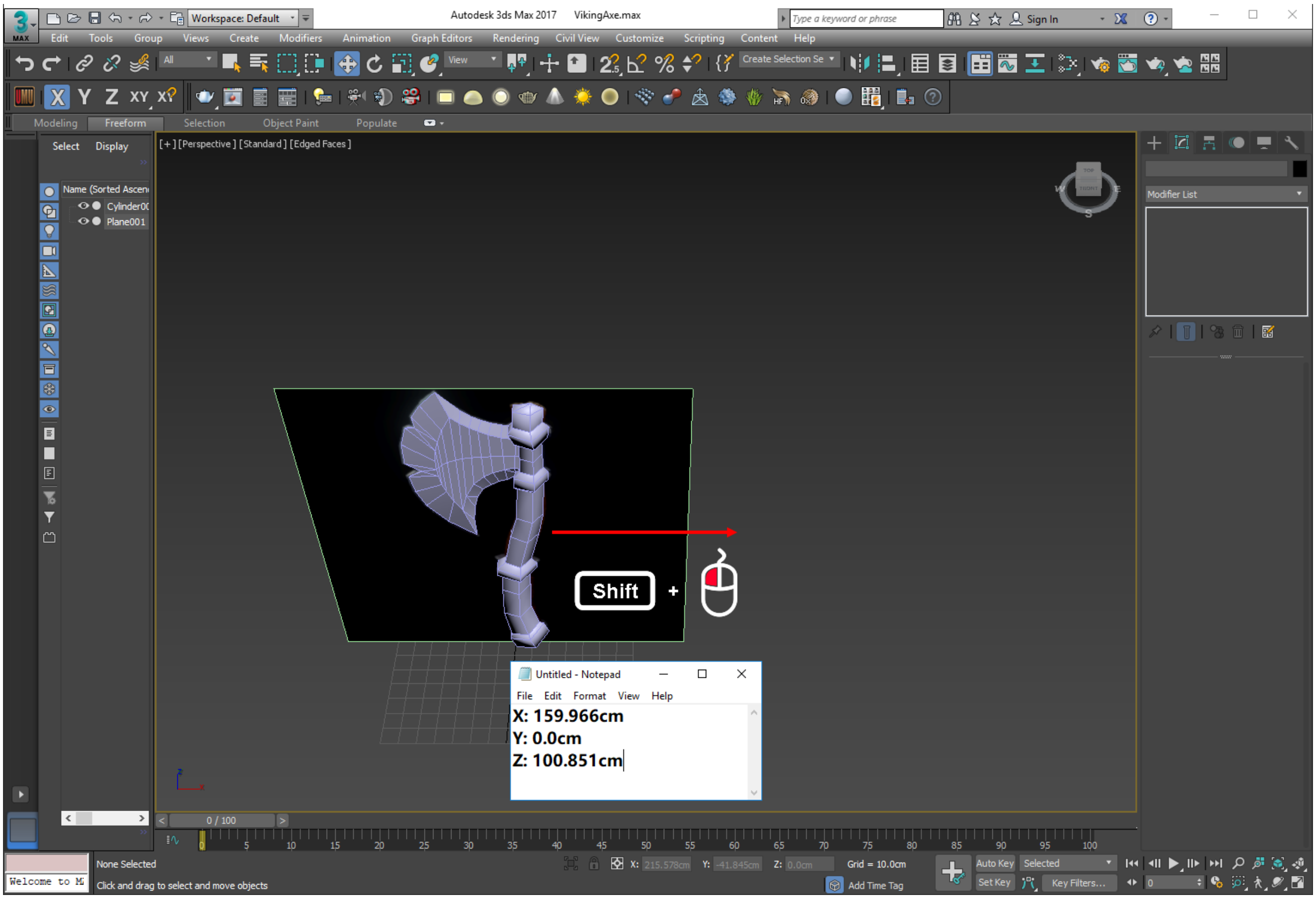
Before import, we need to delete the 2nd axe, because we already use push on it



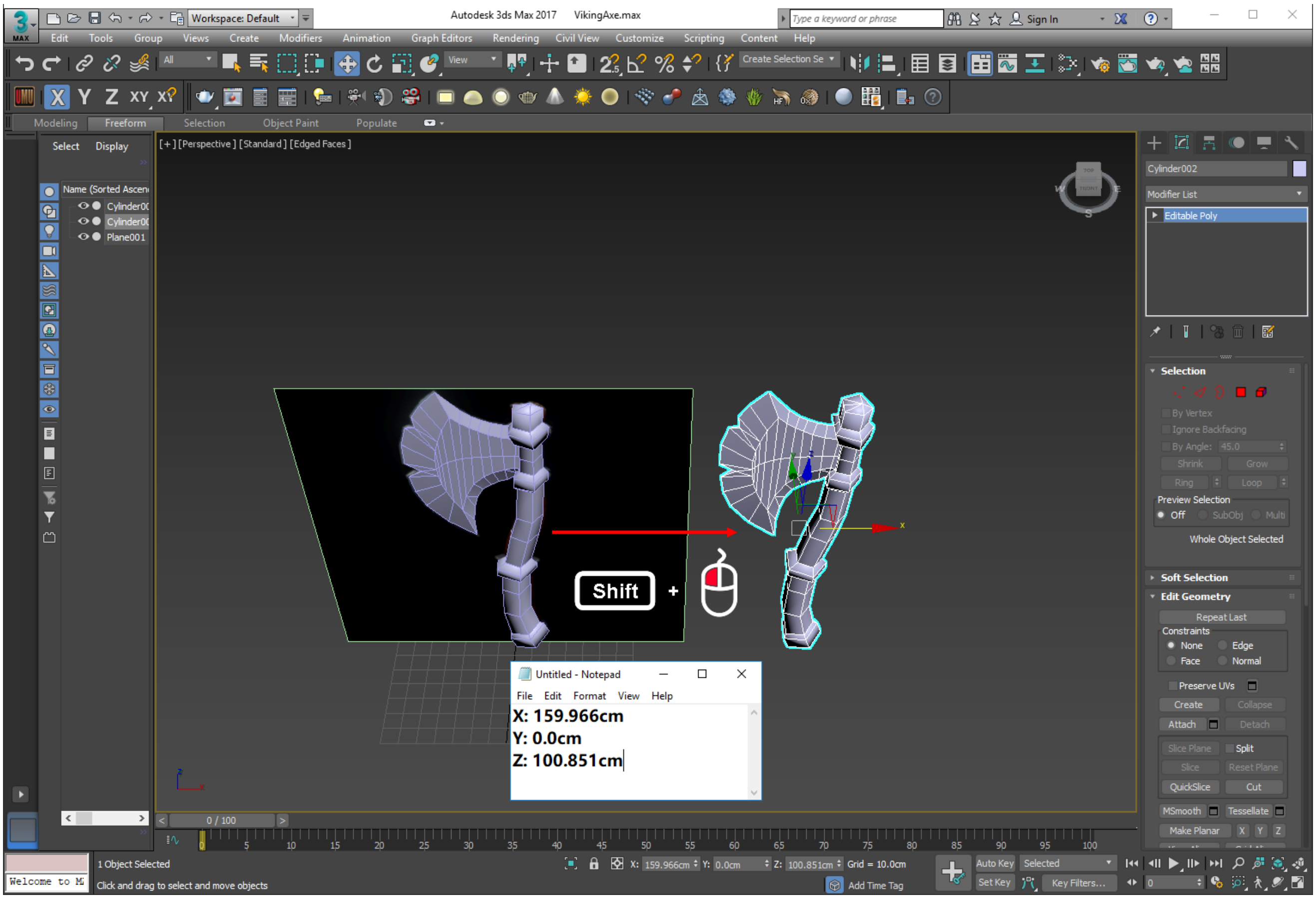
Write down the XYZ location, and delete the 2nd axe



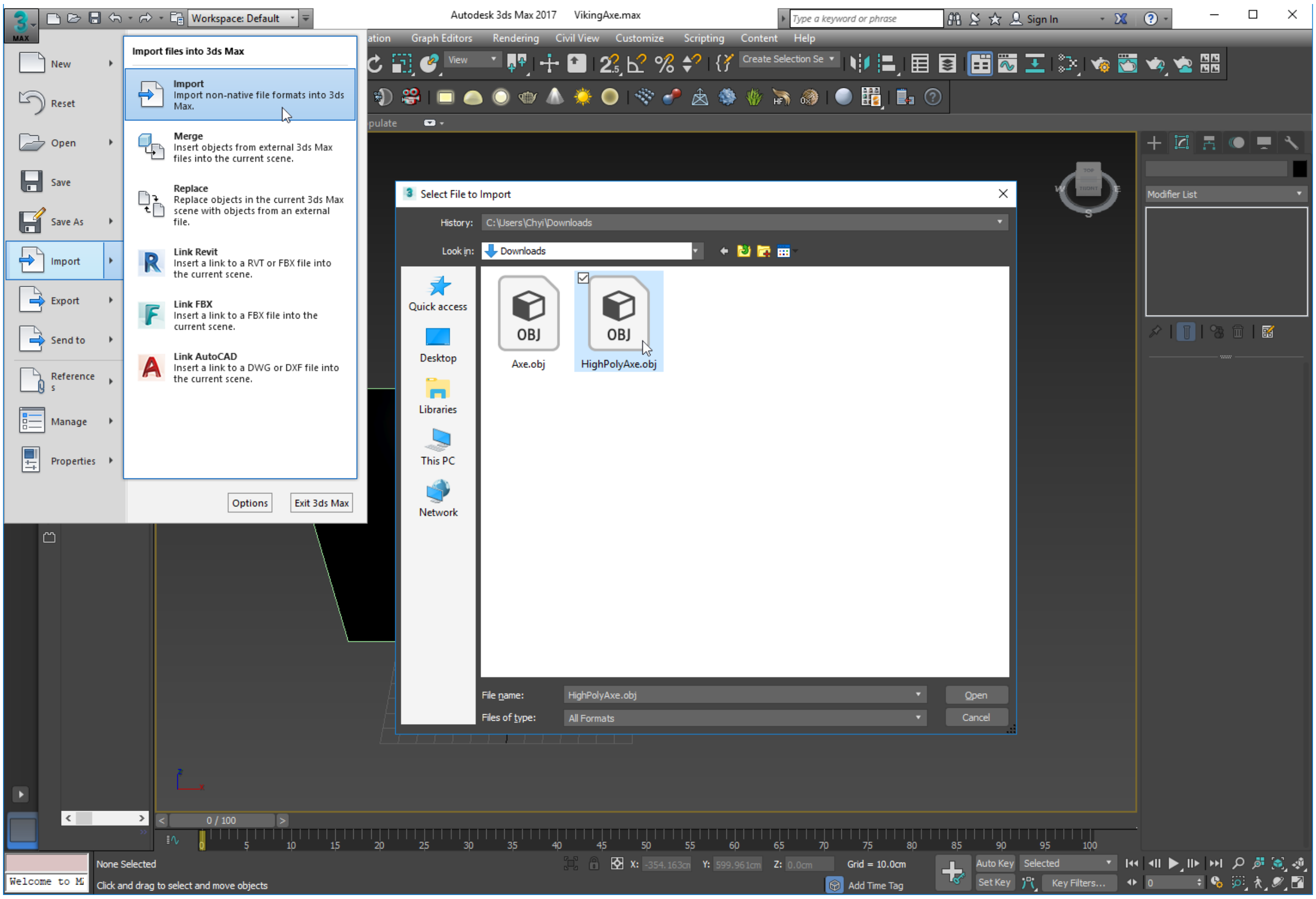
After delete, hold shift and copy another one



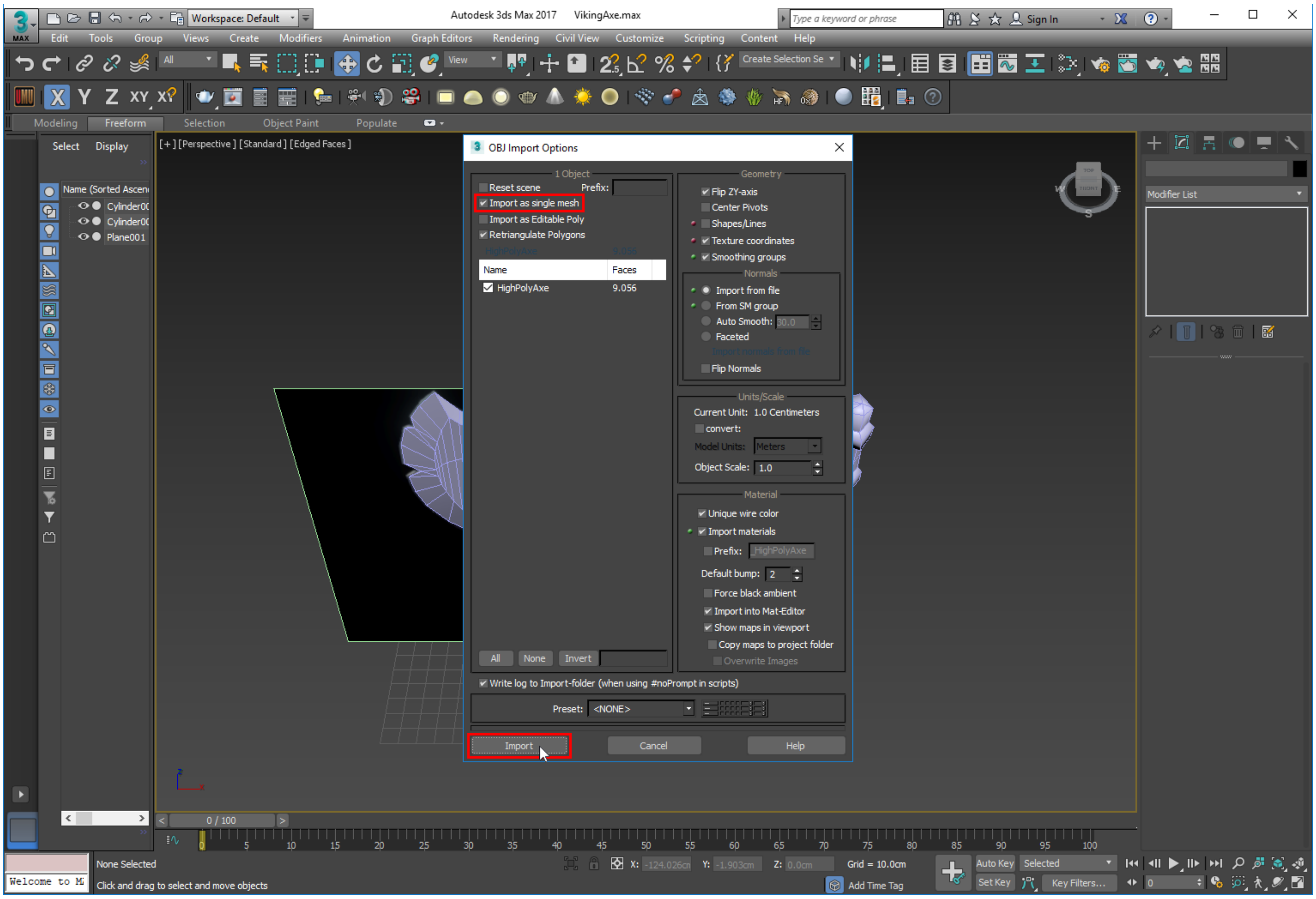
Adjust the XYZ location same as previous



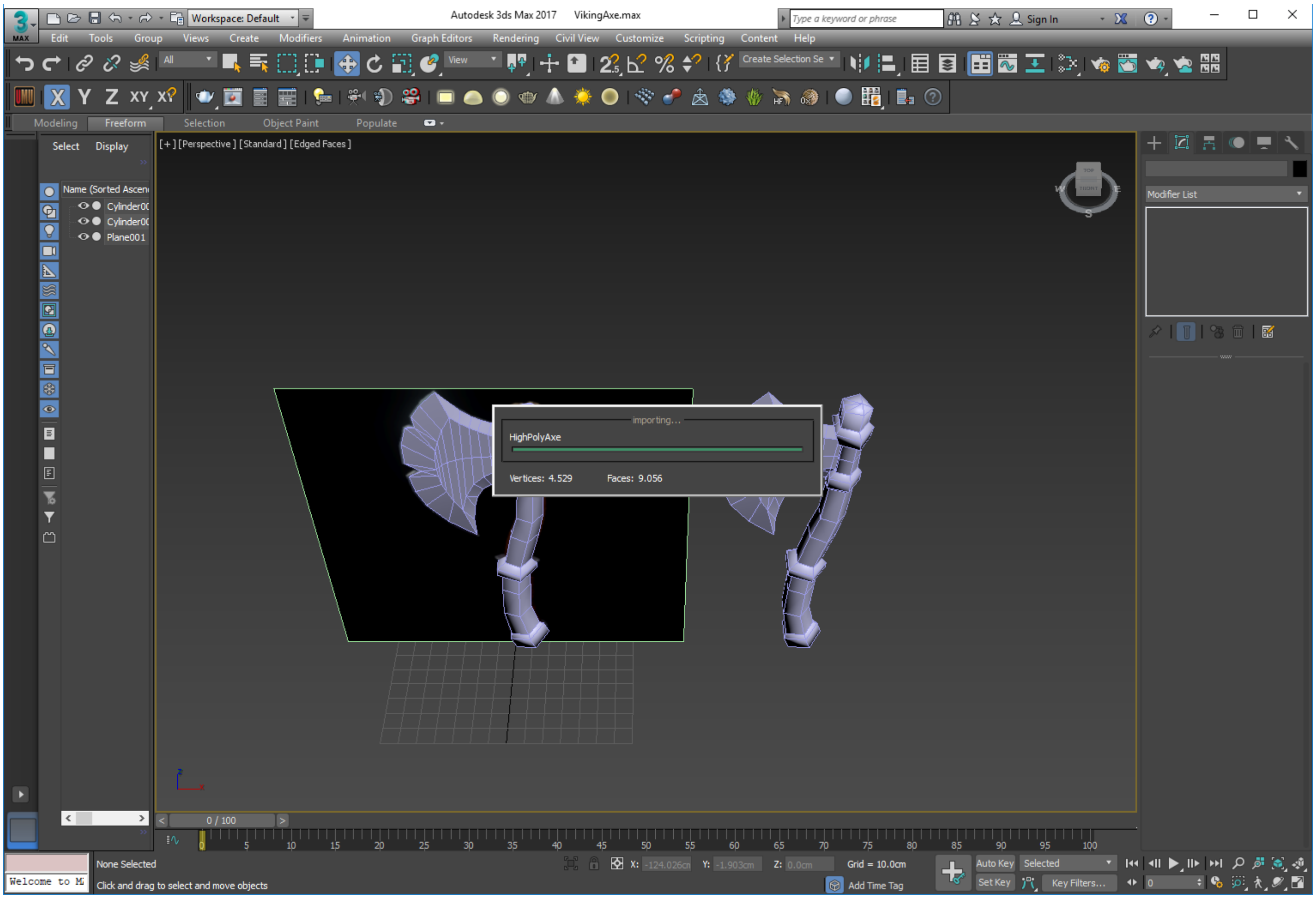
Now import “HighPolyAxe.obj” (Zbrush export)



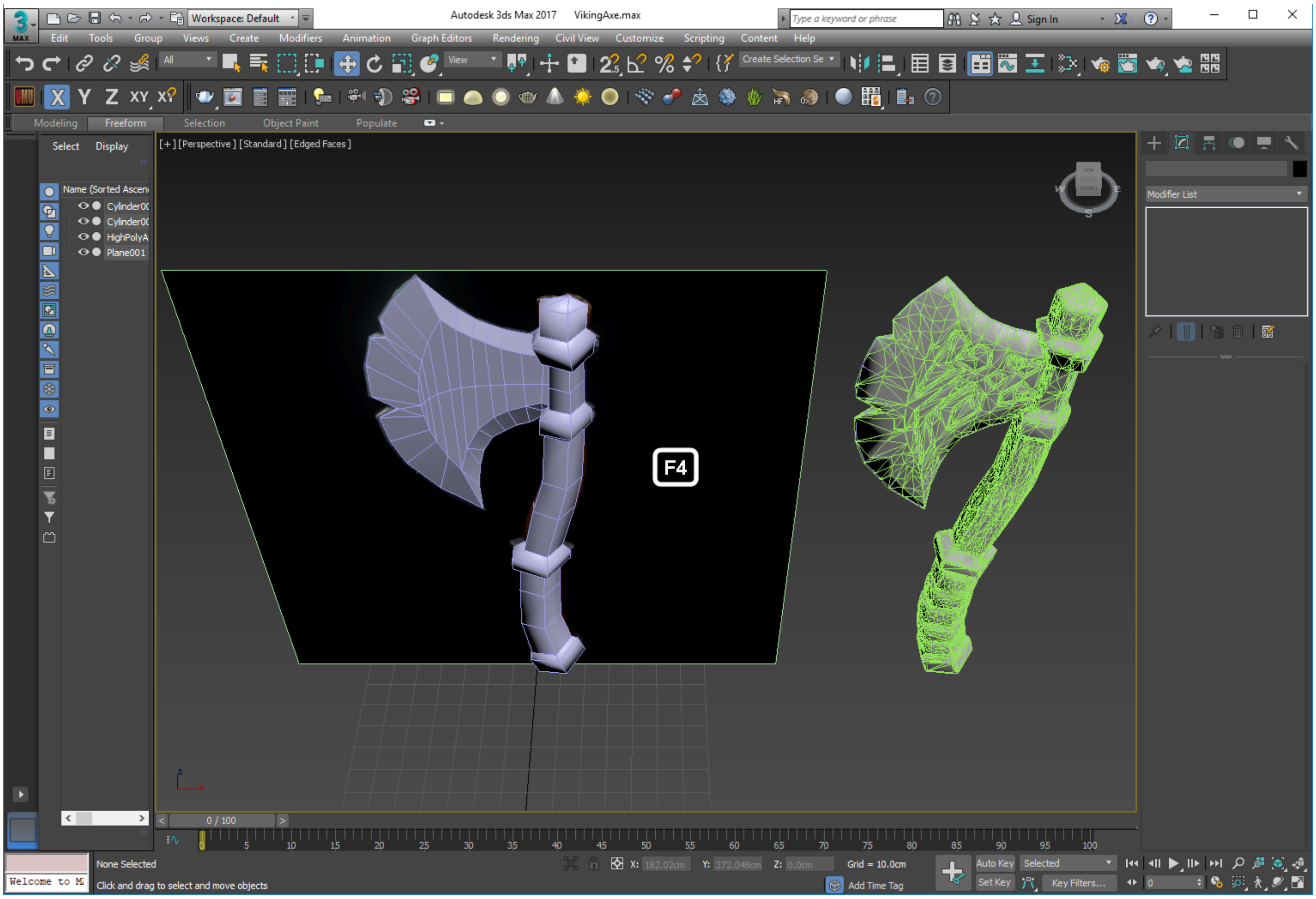
Enable “Import as single mesh” and click Import



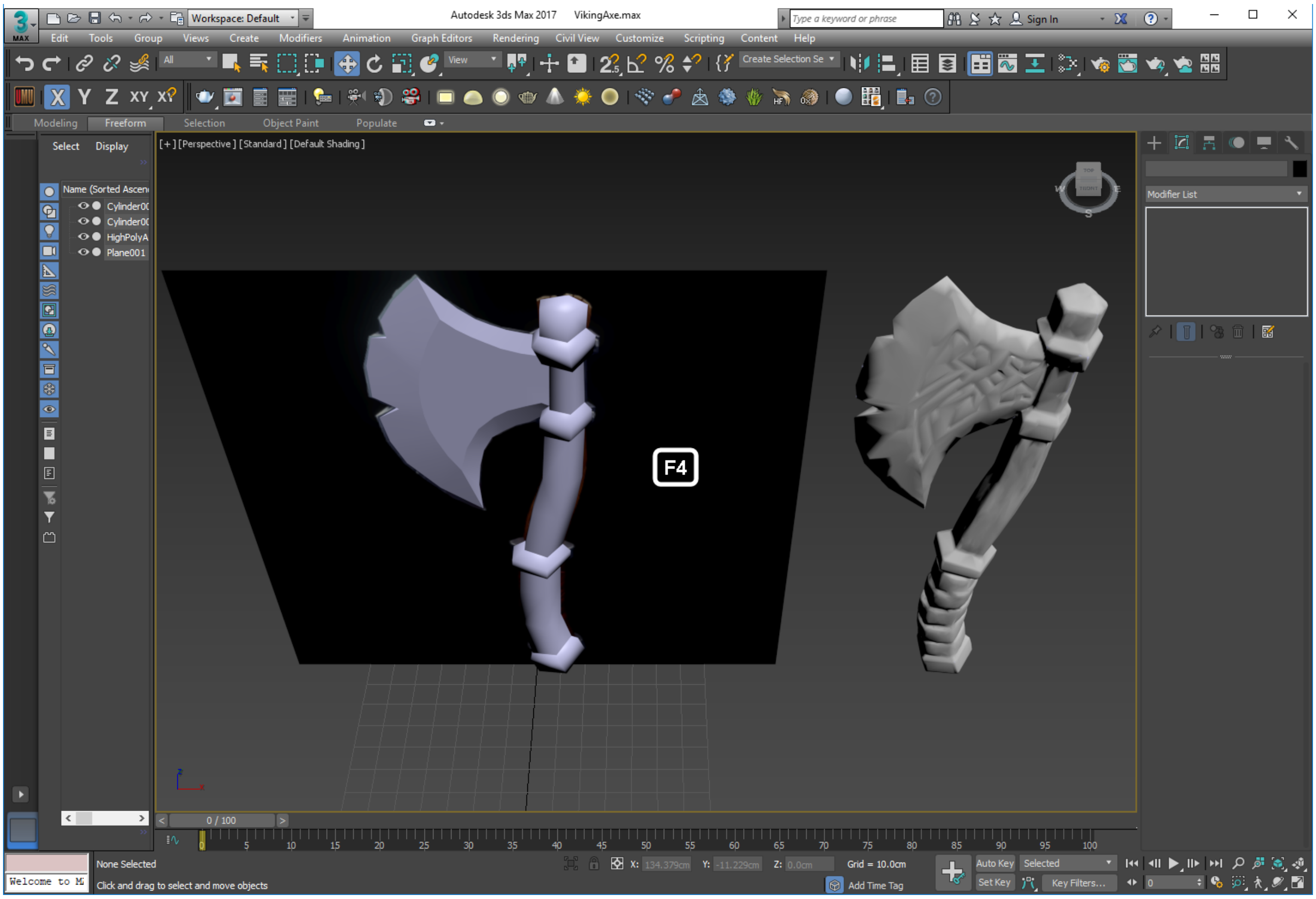
Wait it importing…



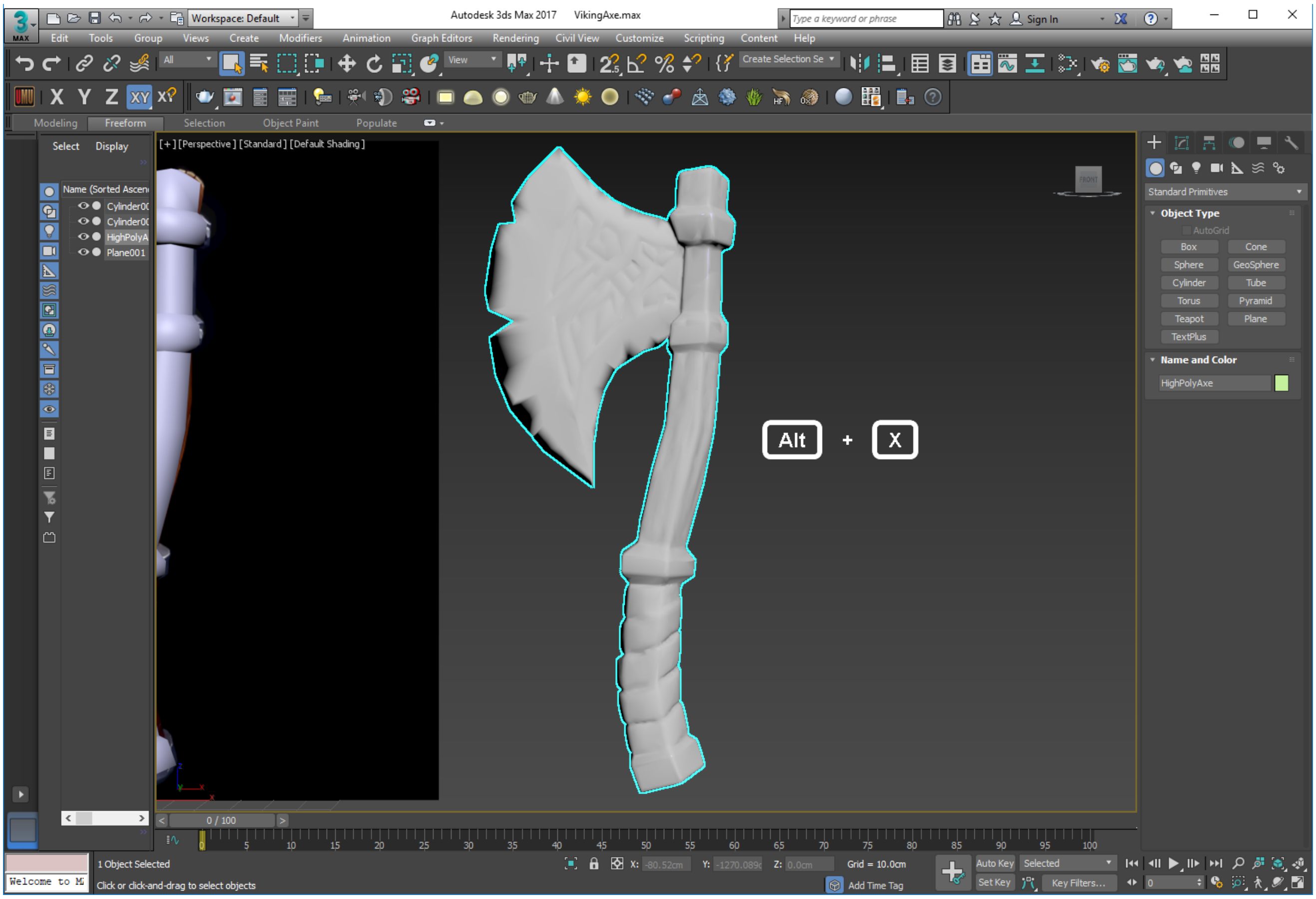
After import, you can press F4 to see difference between lowpoly and highpoly



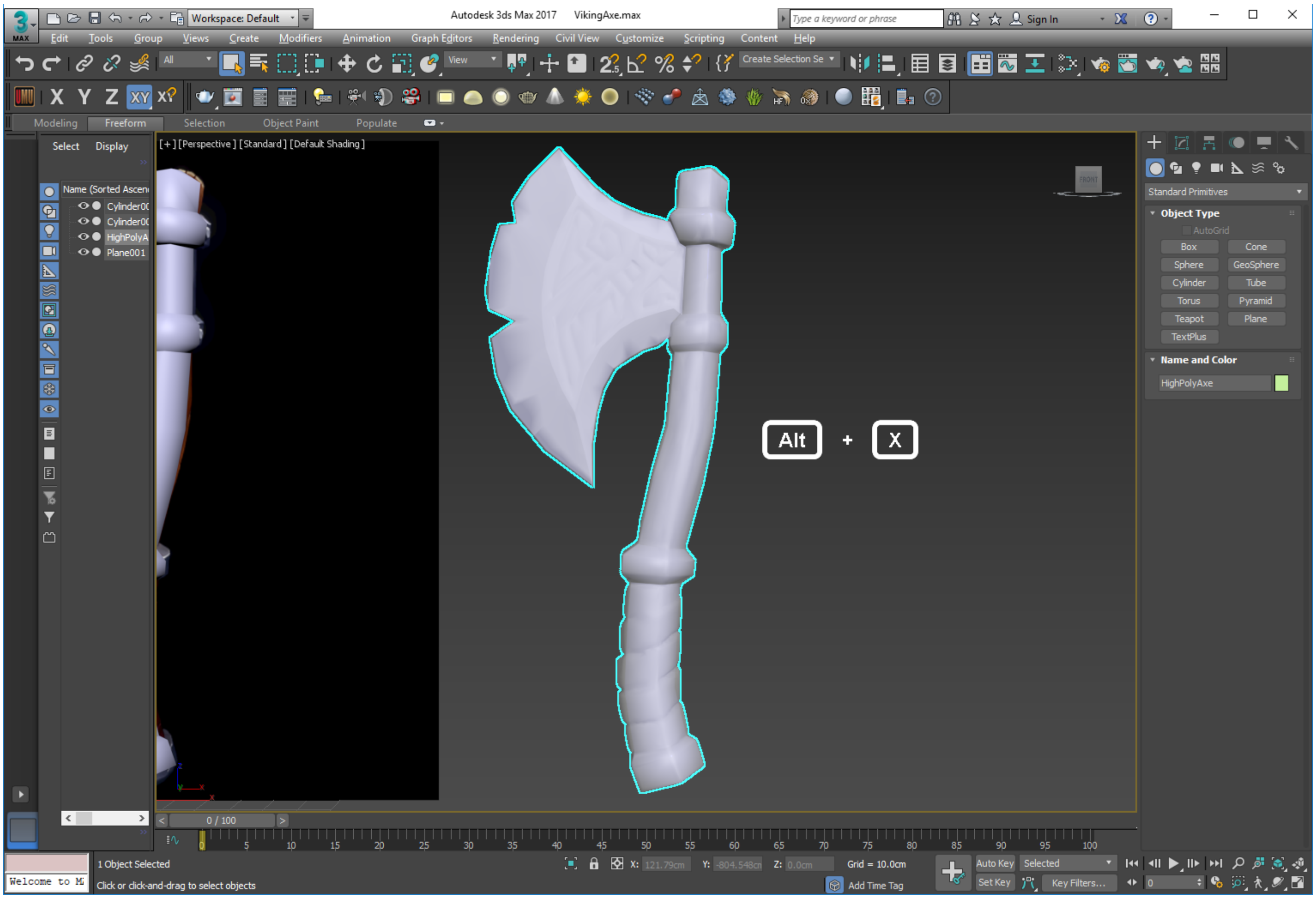
Press F4 to hide the lines (wireframe)



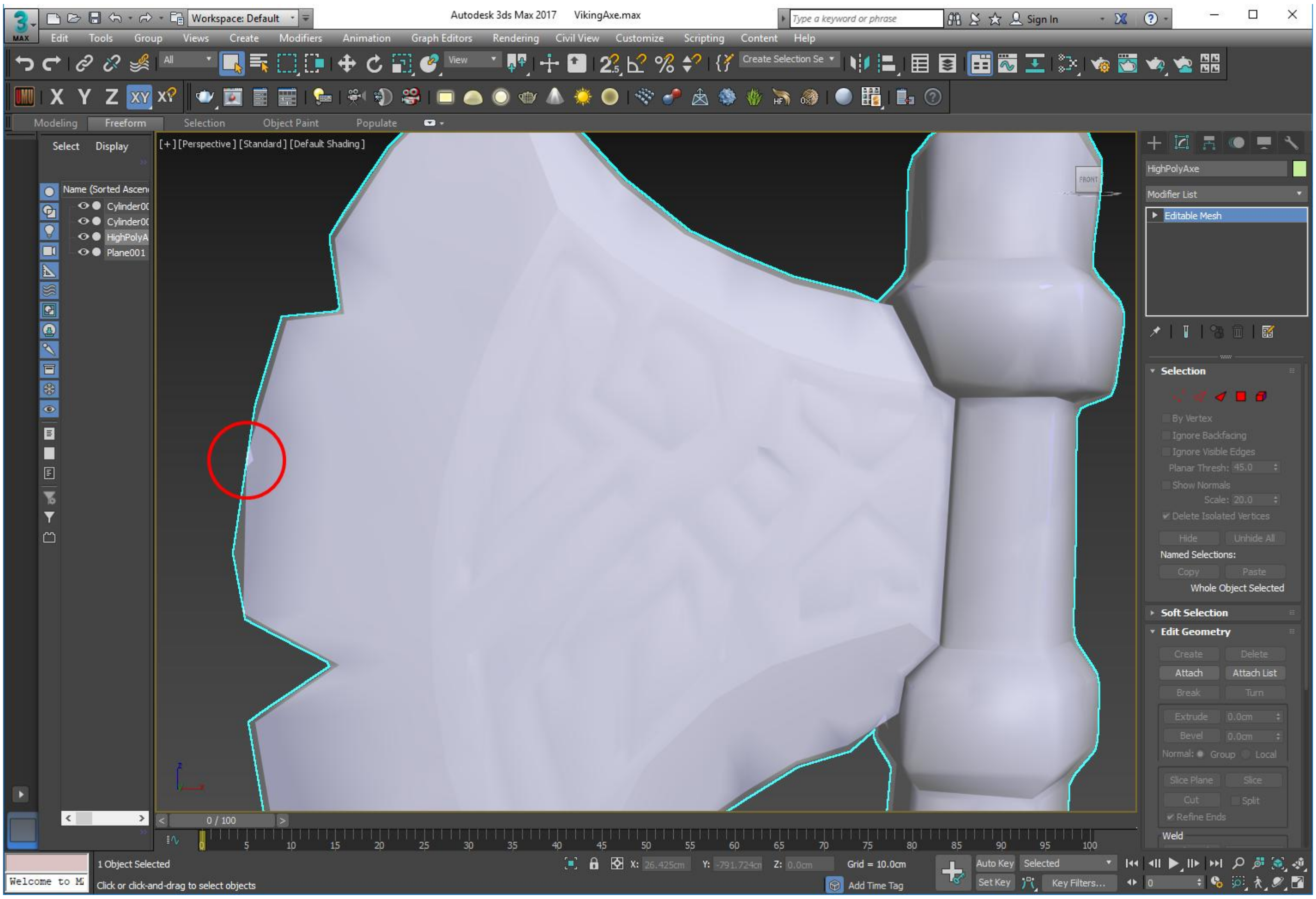
Press Alt + X and turn it to transparent



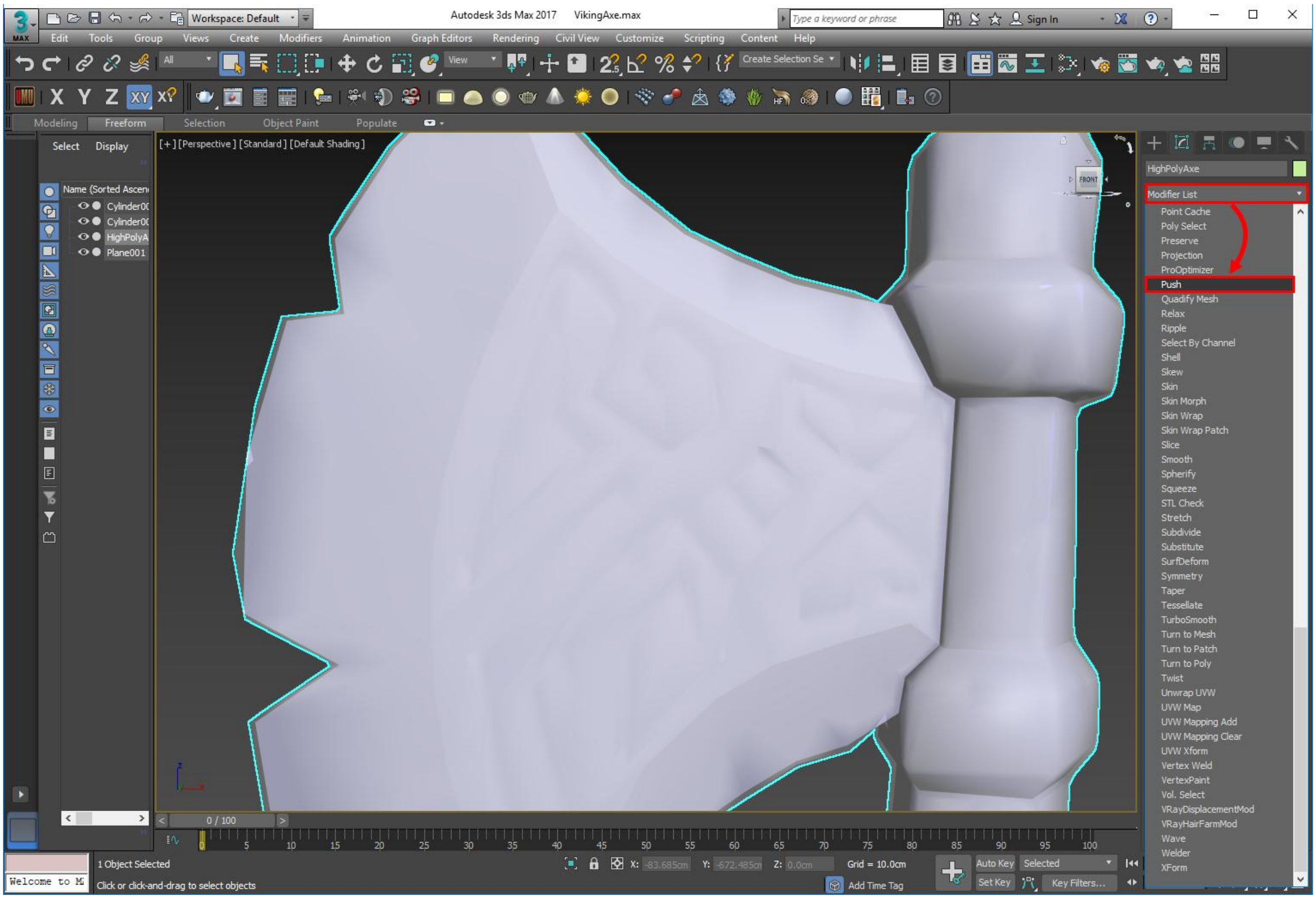
After turn it to transparent, zoom in and check carefully



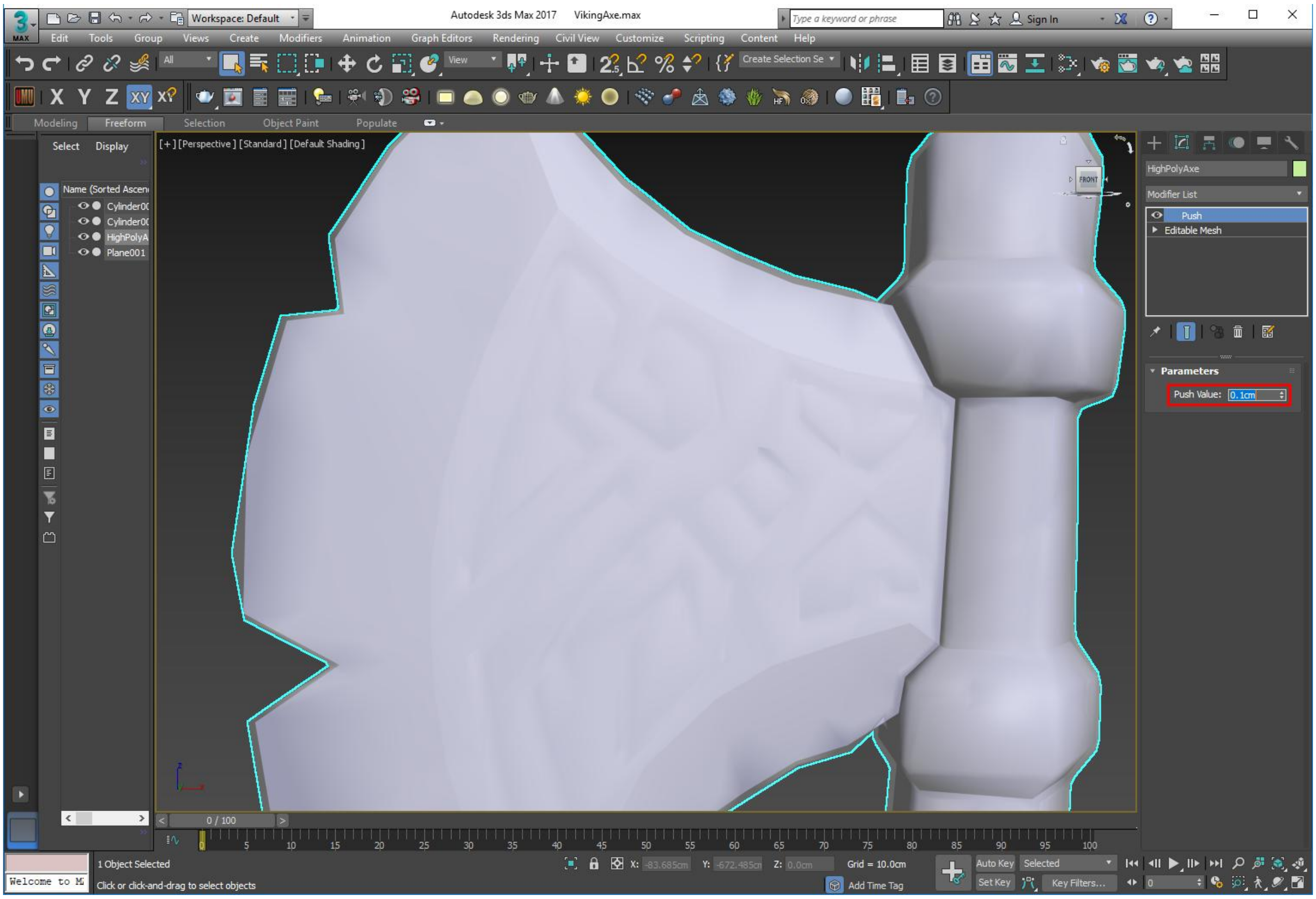
If the highpoly unable cover lowpoly fully, we must use modifier list → push



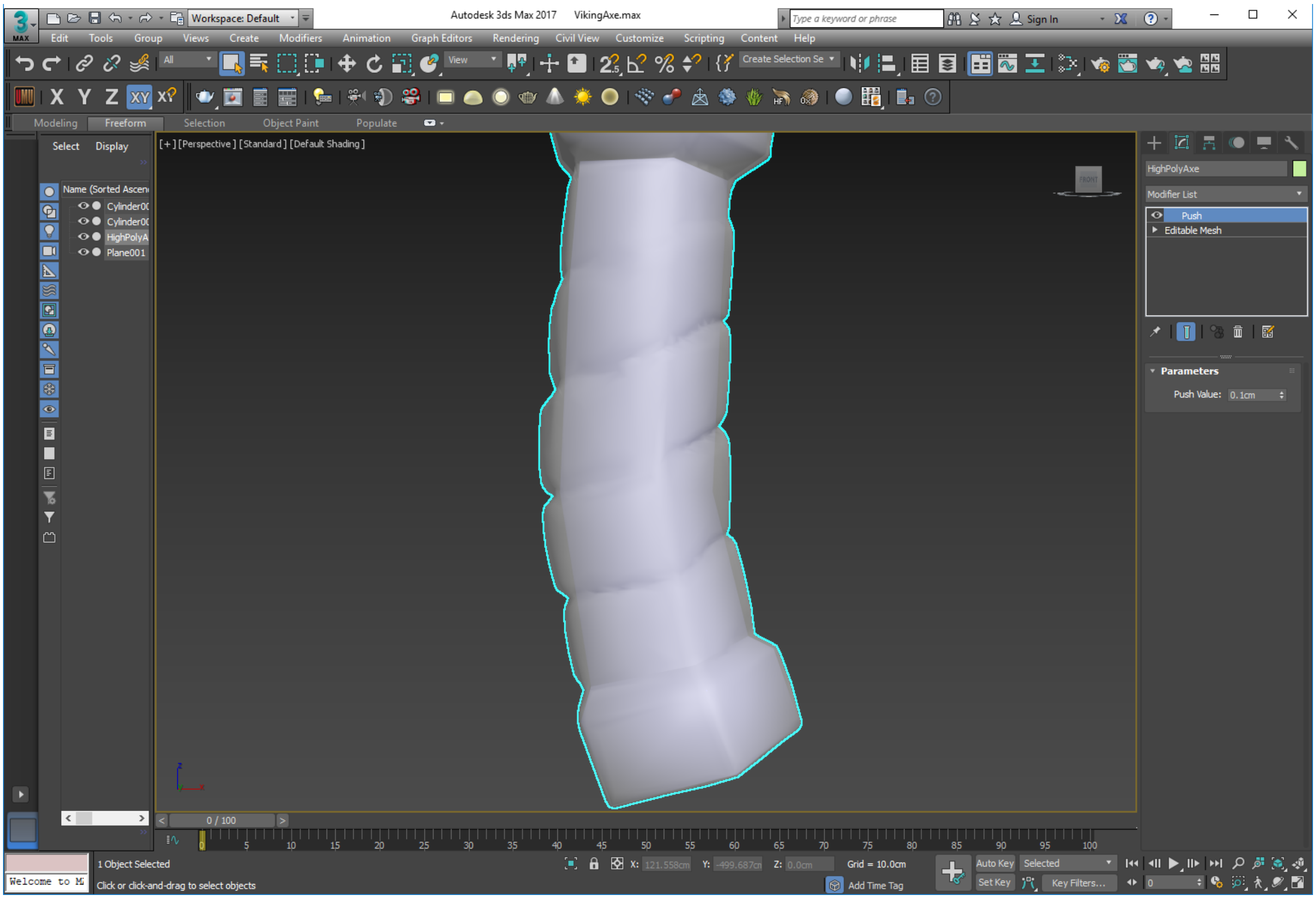
Modifier List → Push



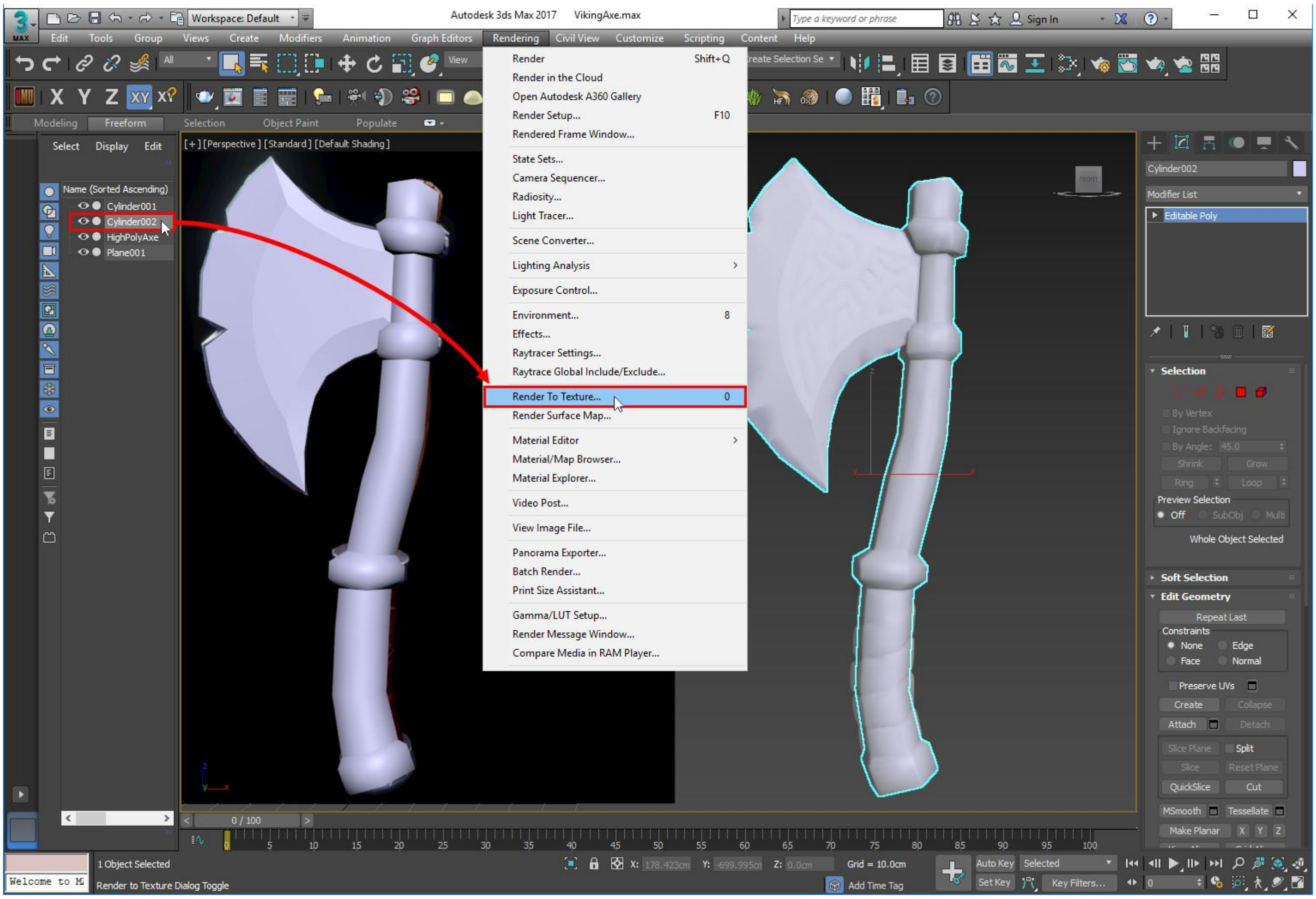
Push value: 0.1cm



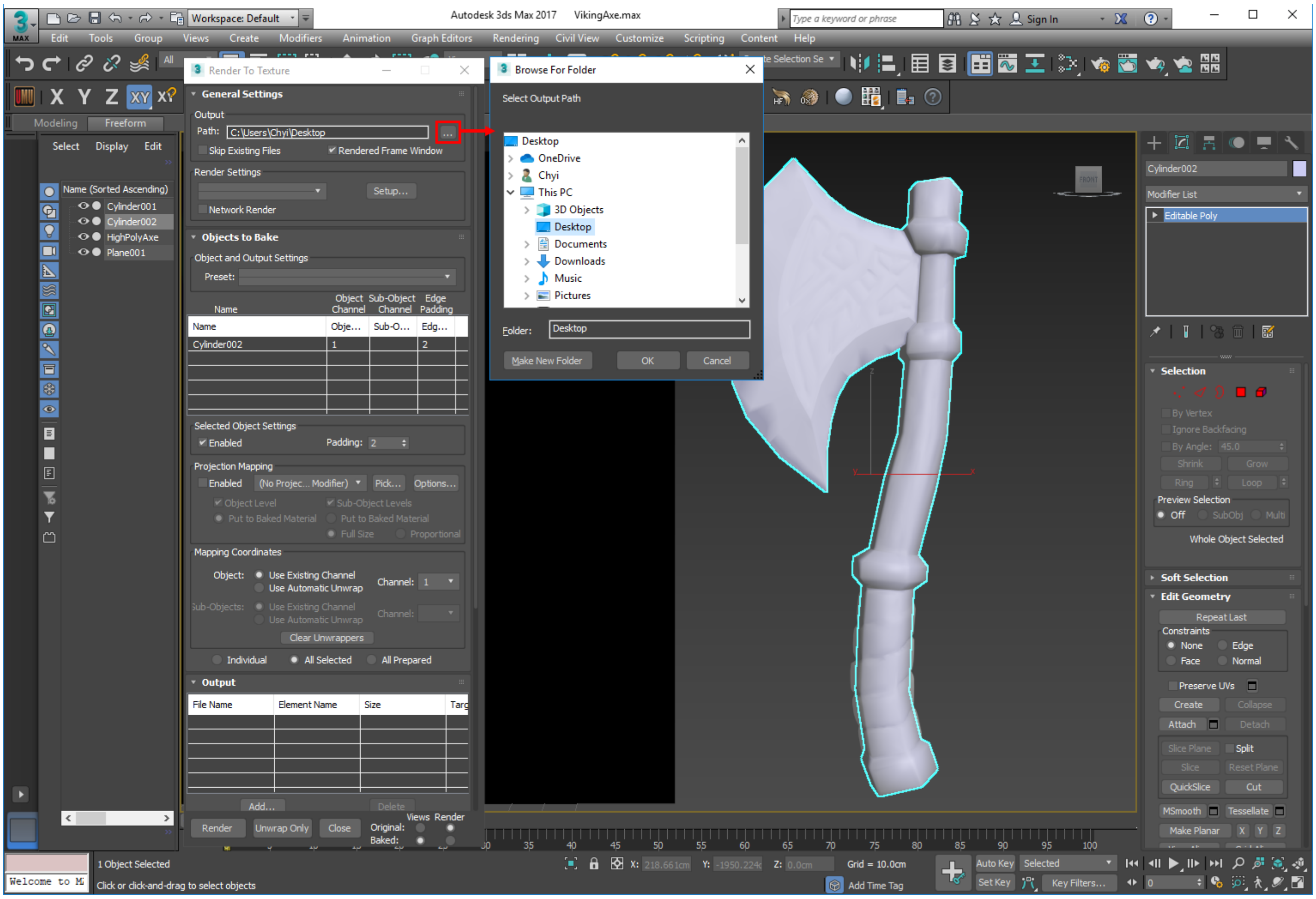
Check other area and part, make sure all fully cover



Select lowpoly axe (inside) and click Rendering → Render To Texture

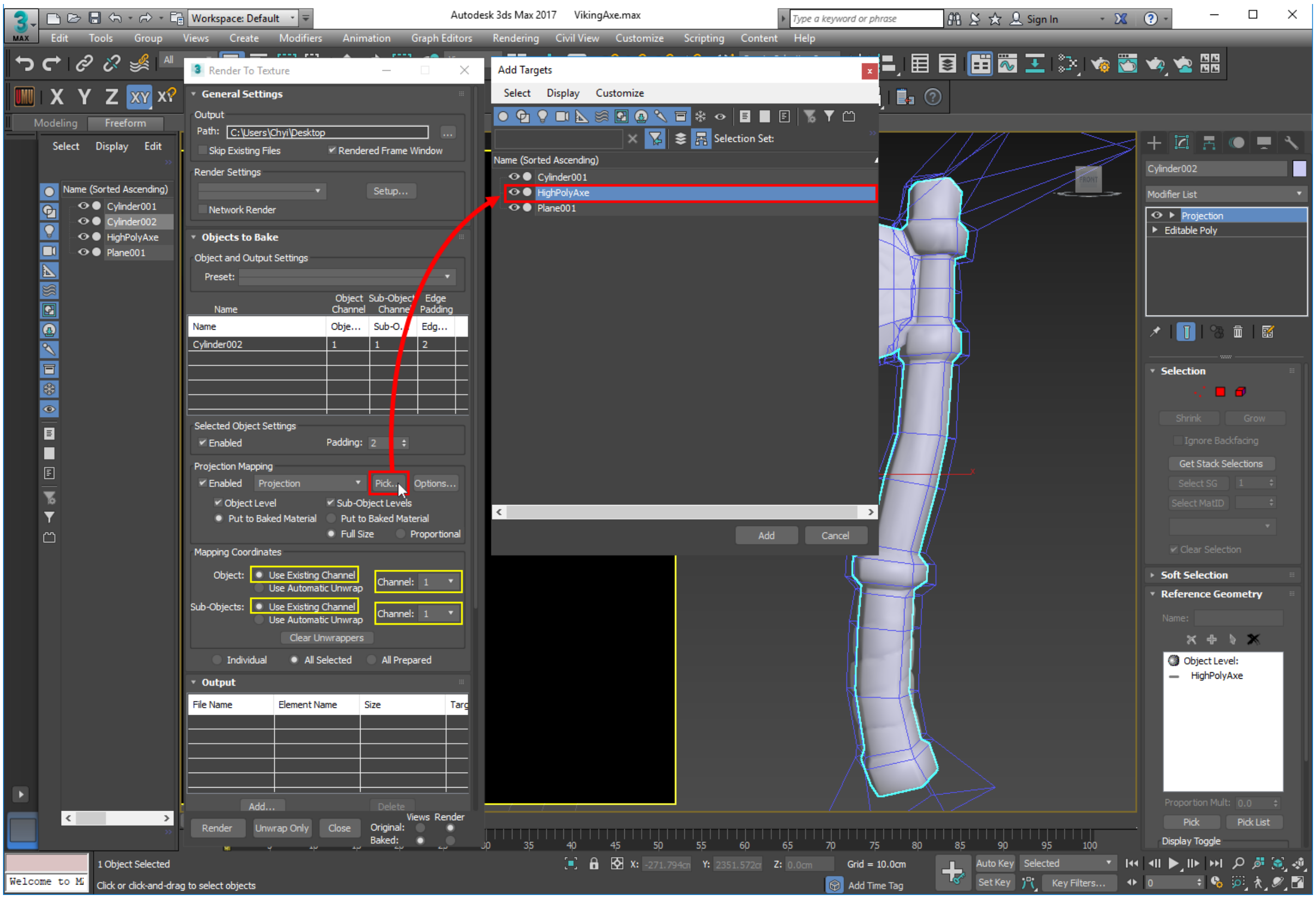


Select output folder for saving normal map



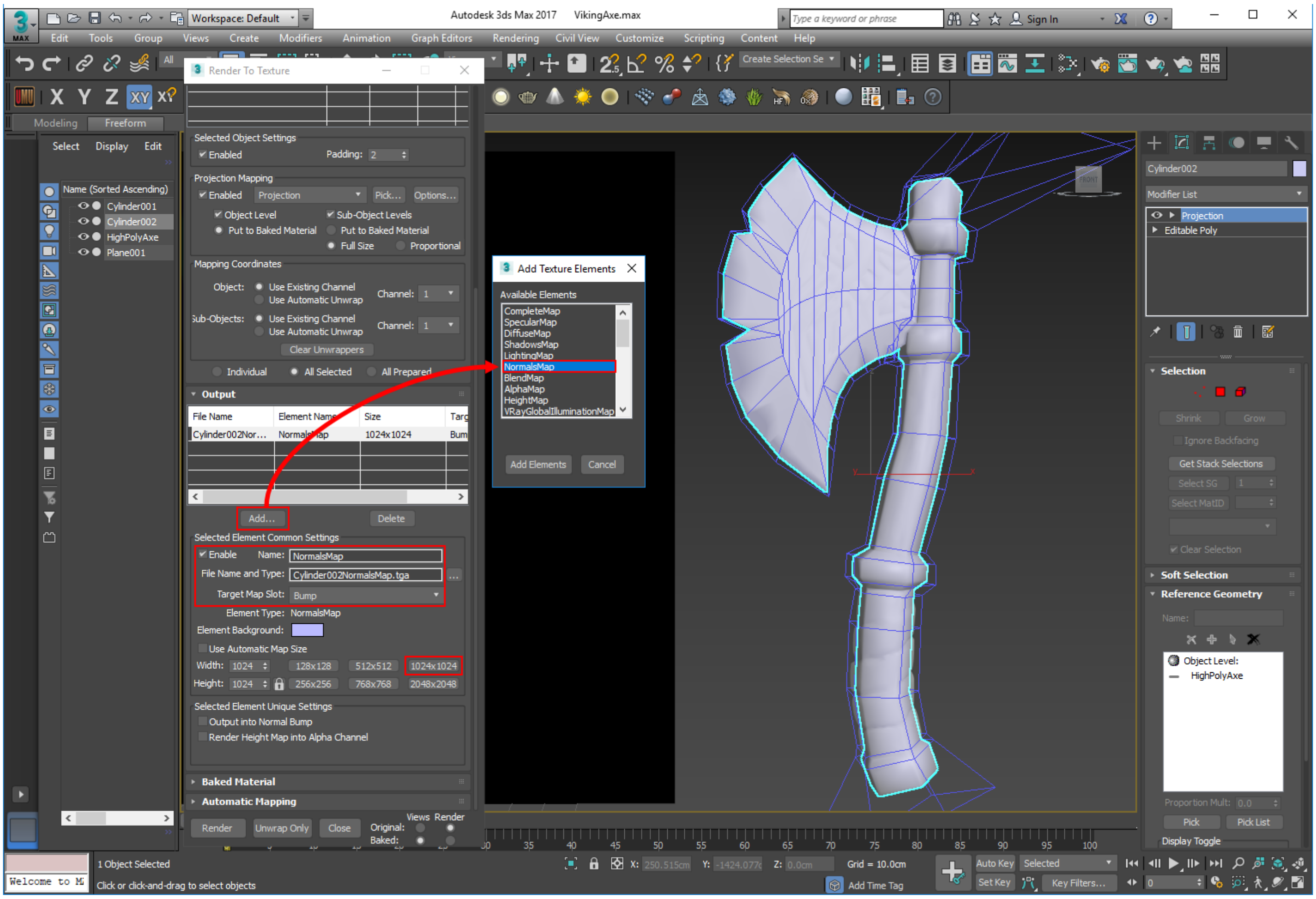
Click "Pick" and choose HighPolyAxe

Also select both "Use Existing Channel" and Channel: 1

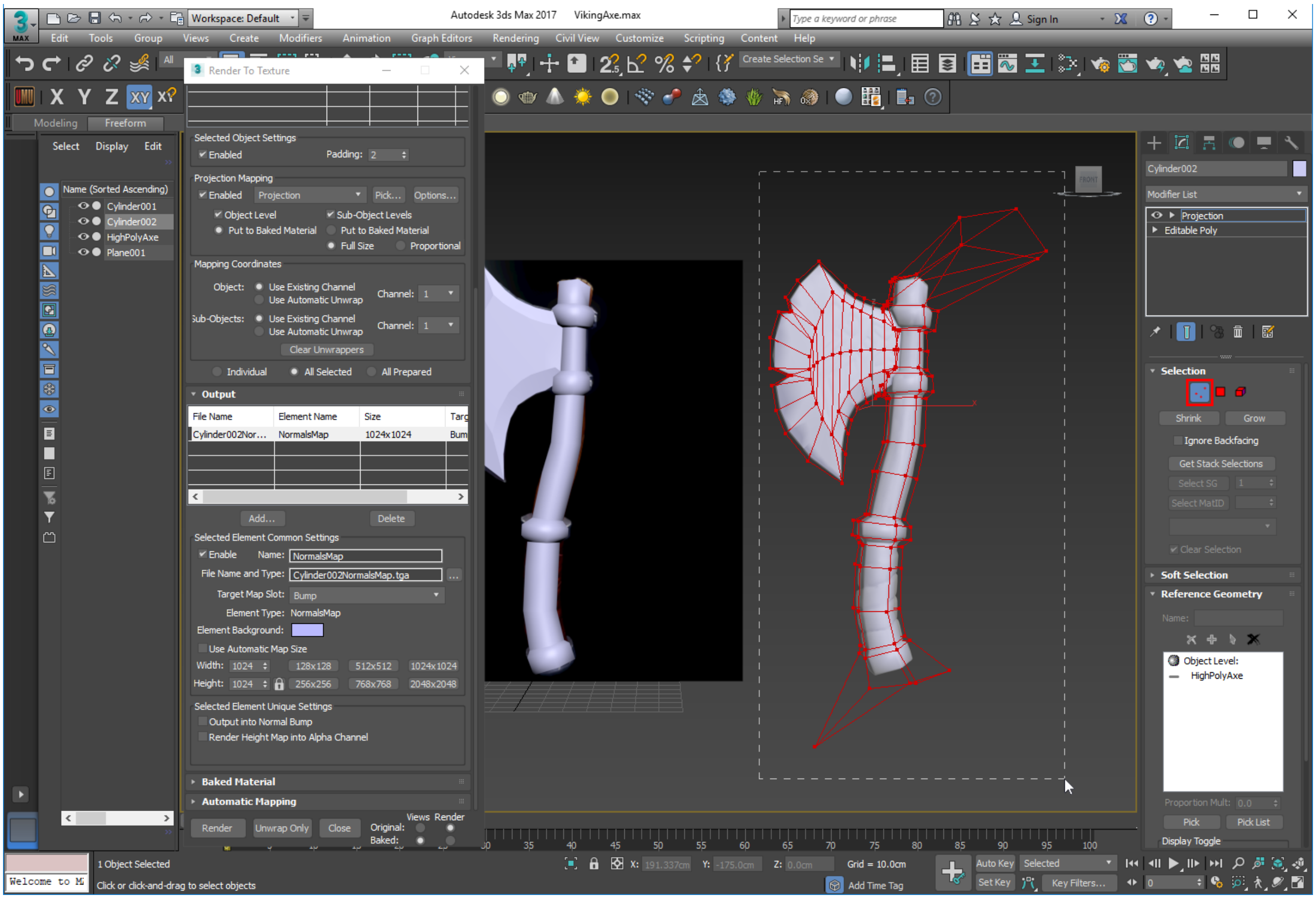


Under Output, click "Add..." and select NormalsMap

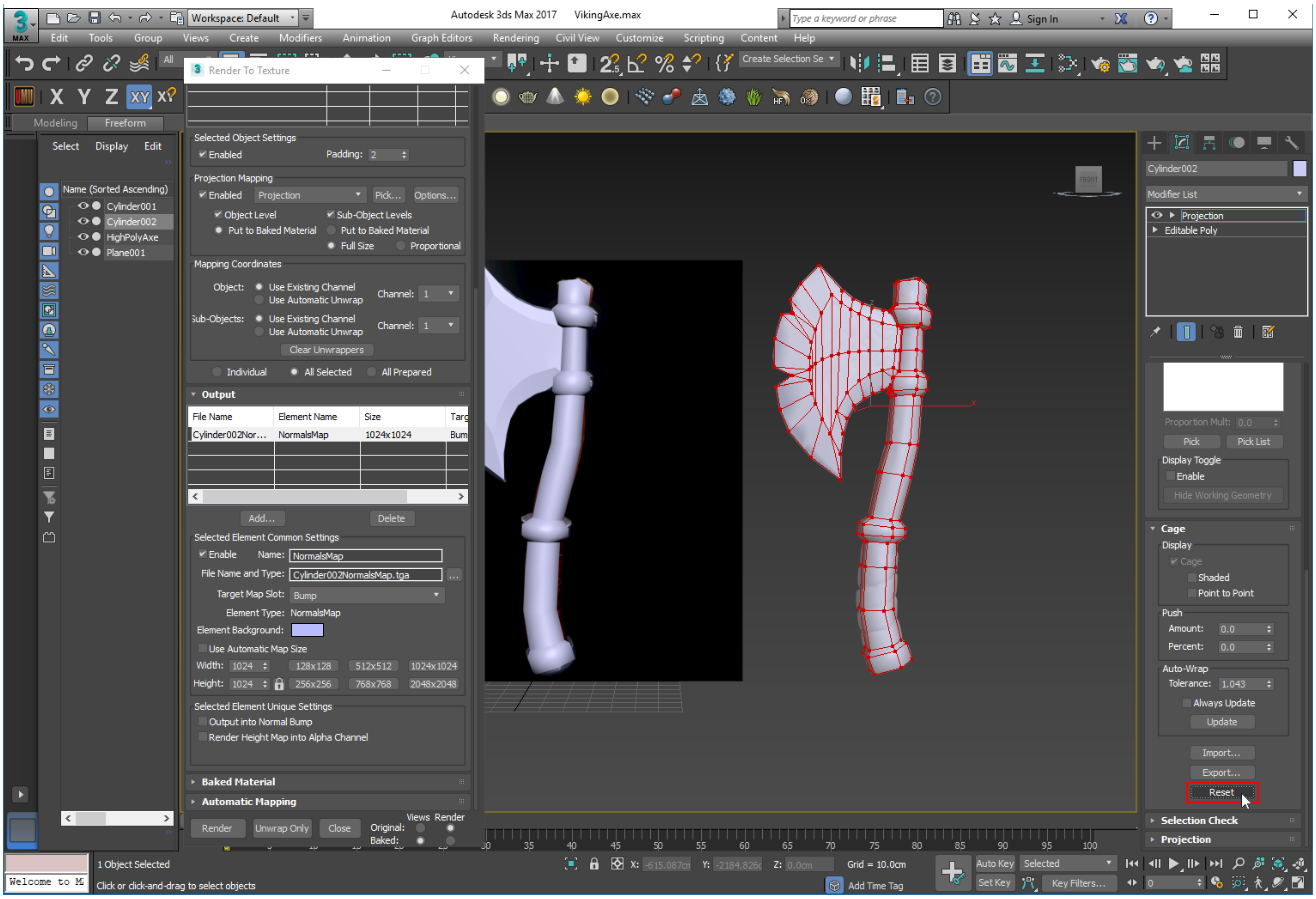
And also click 1024 x 1024 for map size



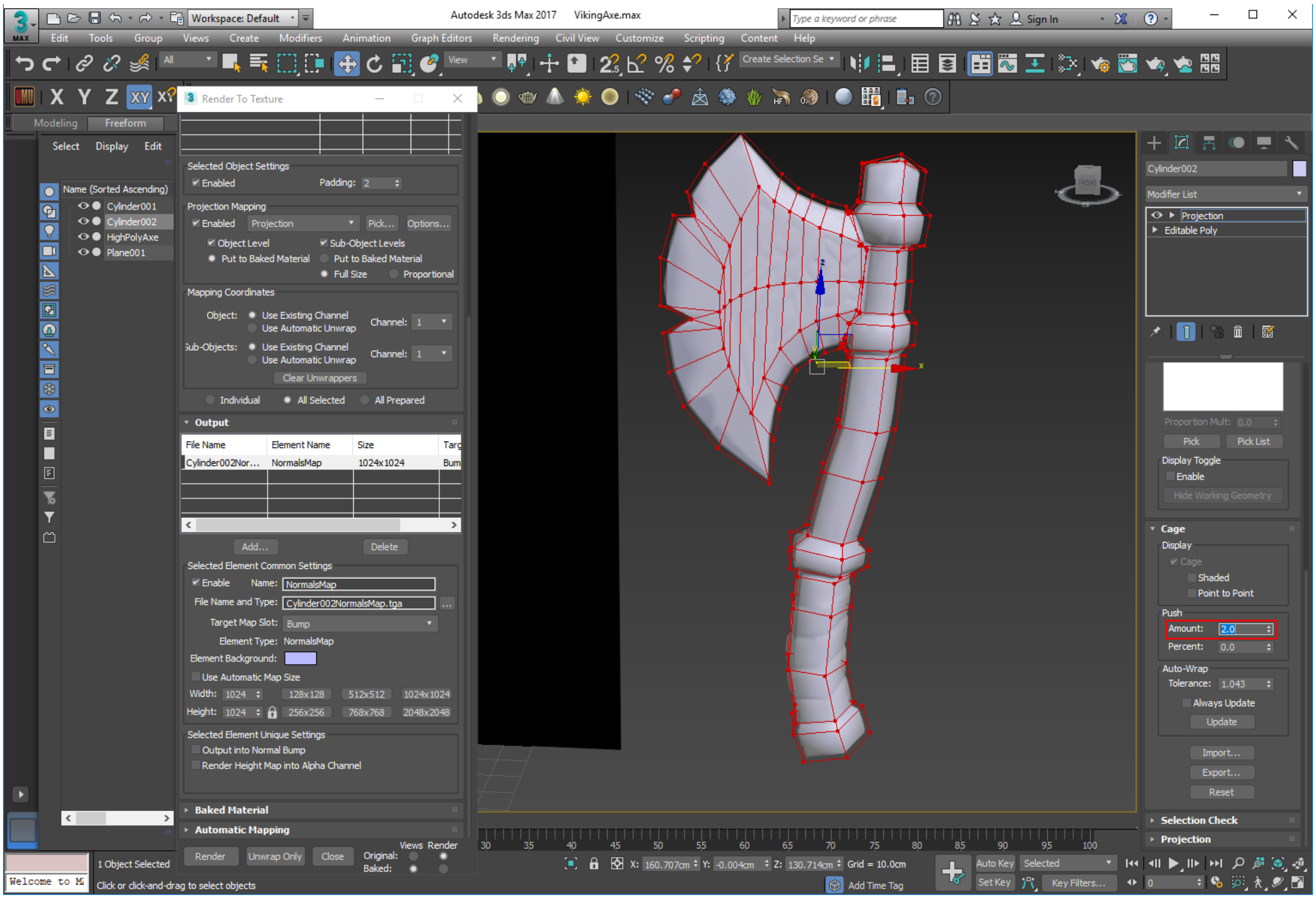
Under Modifiy panel, select "Cage" (vertex) and select all vertex



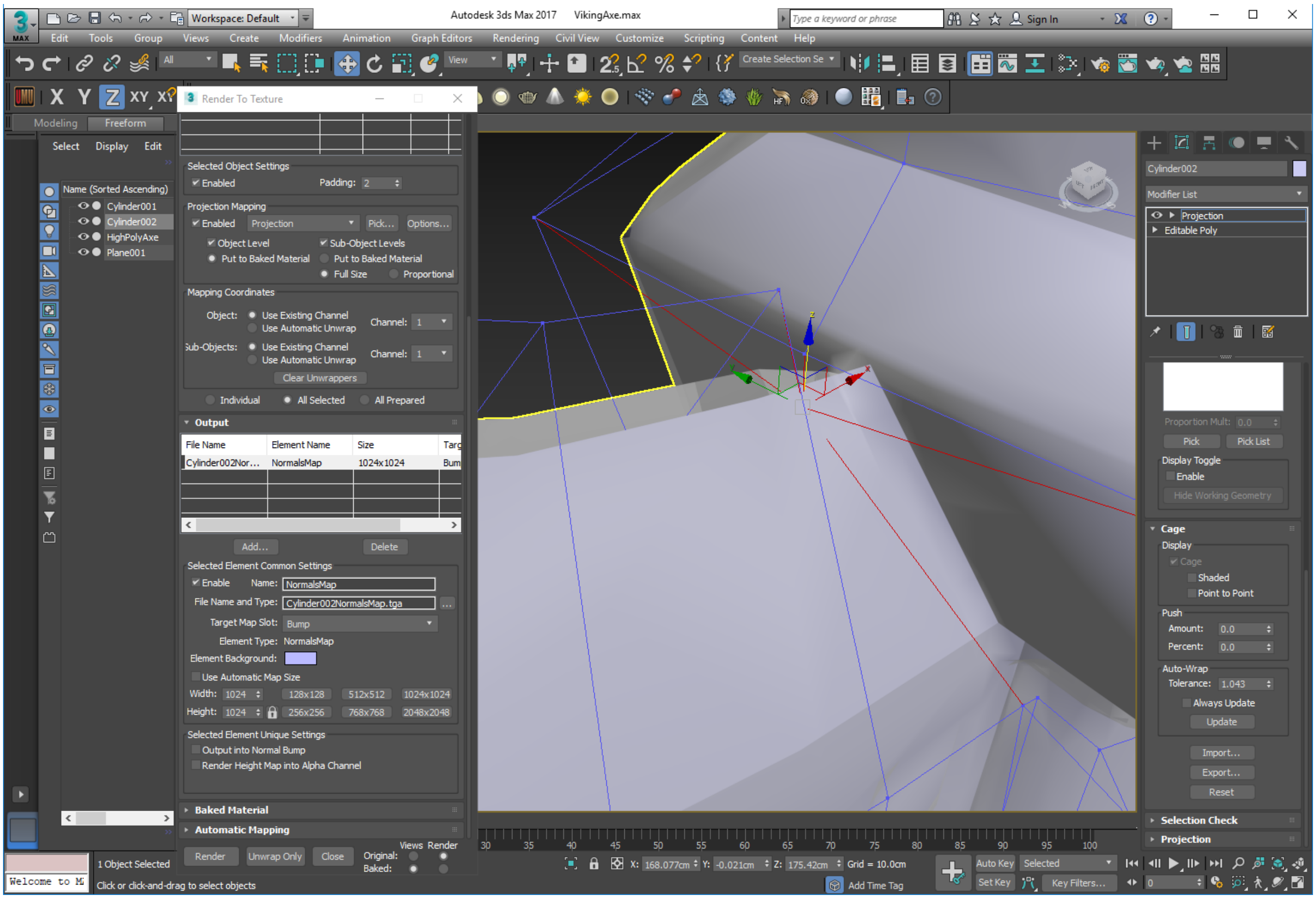
Scroll down and click “Reset” button



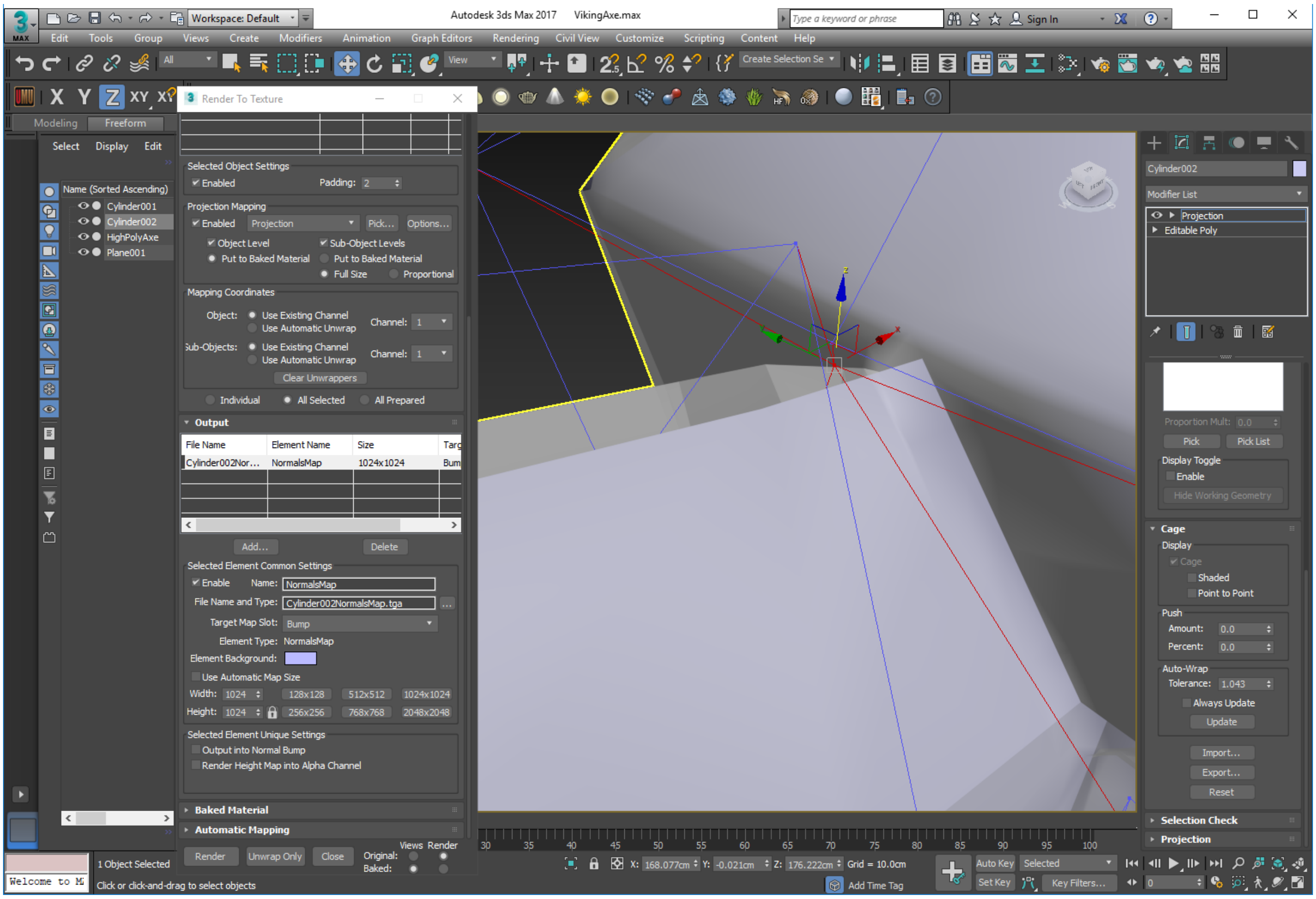
Under Push, add a small amount number, and you will see the cage almost cover all highpoly axe



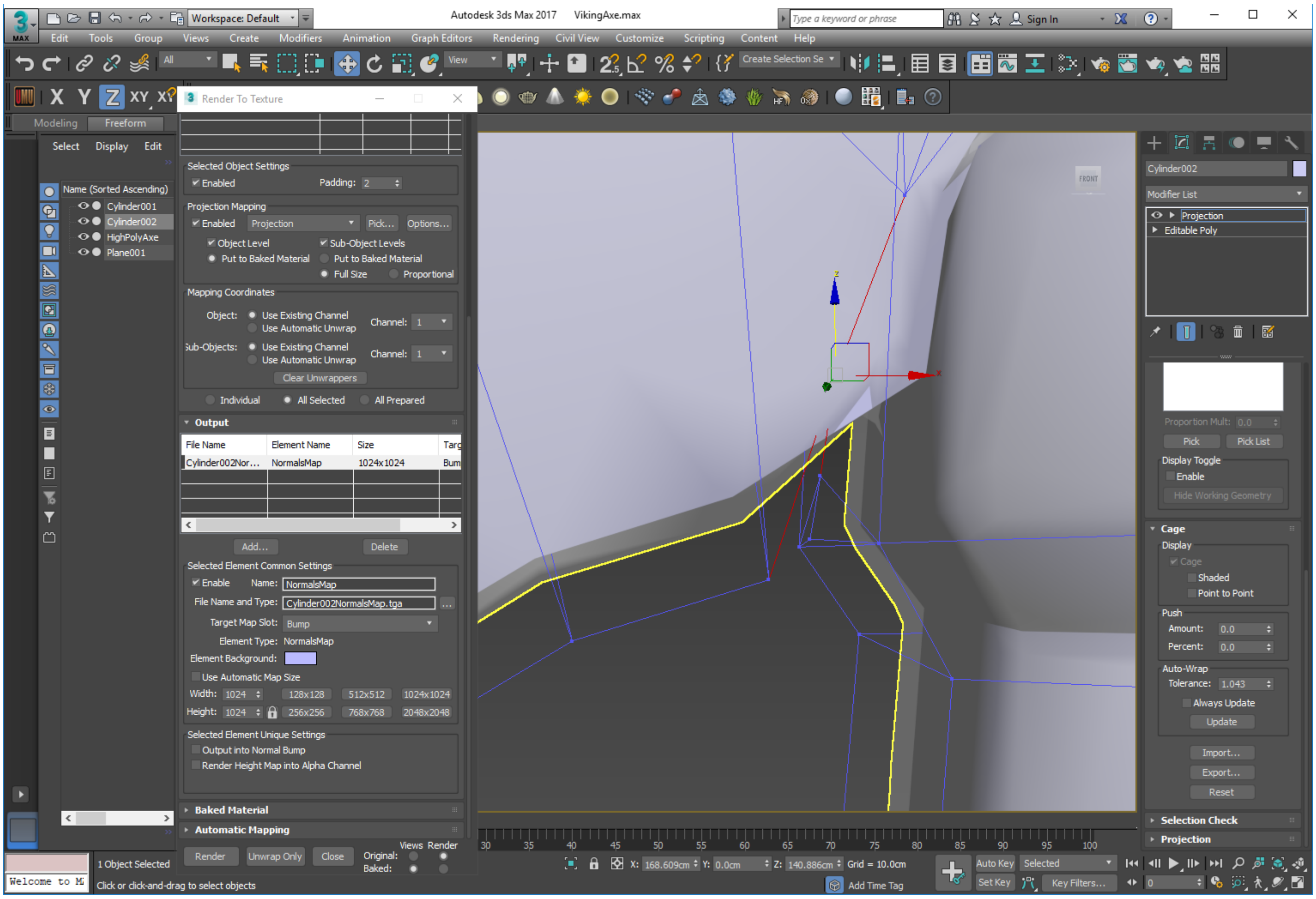
Zoom in and check carefully all cage (vertex)



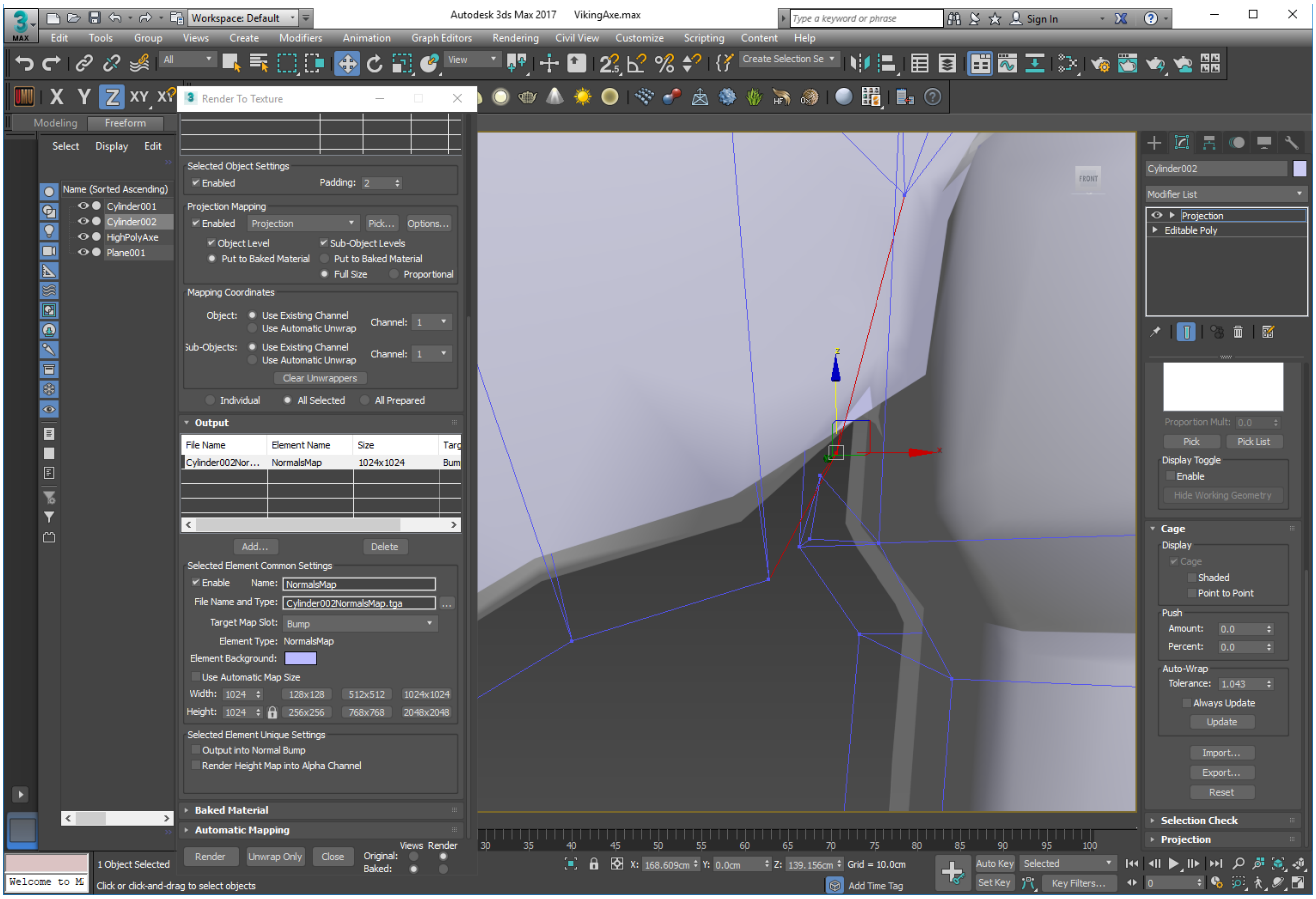
If there is cage (vertex) inside, adjust it to correct position



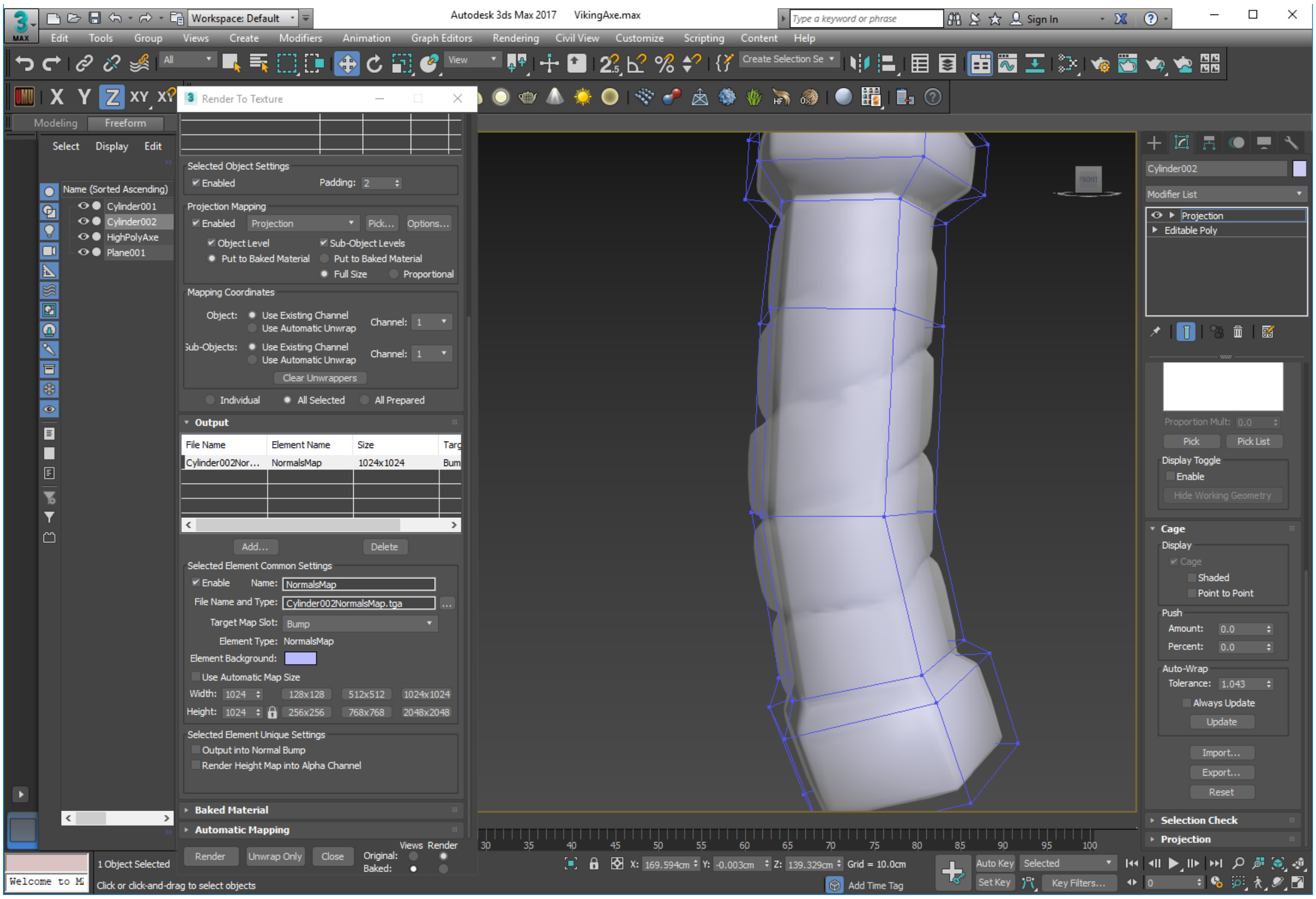
Here is another one cage (vertex) inside



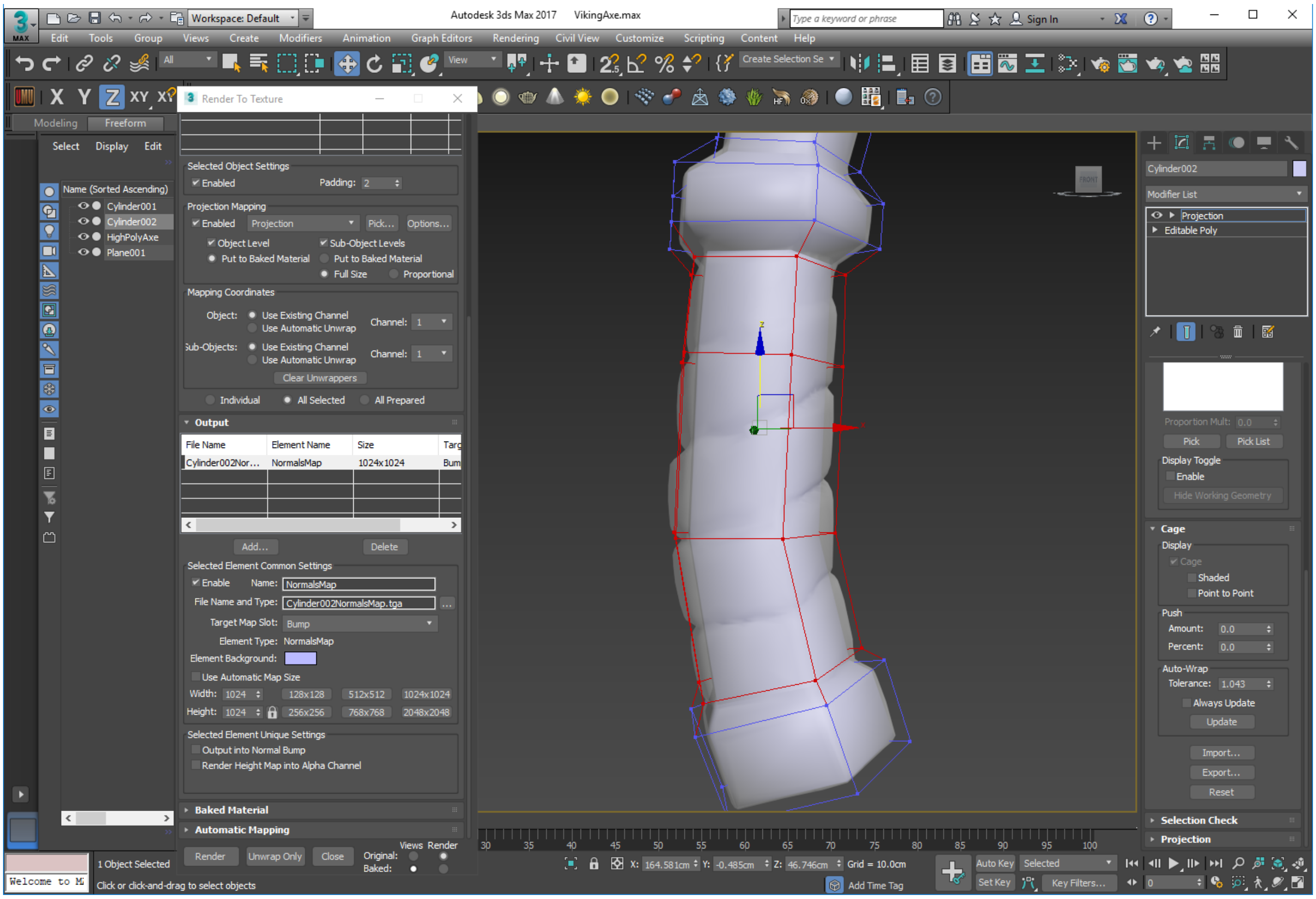
Select it and adjust downward



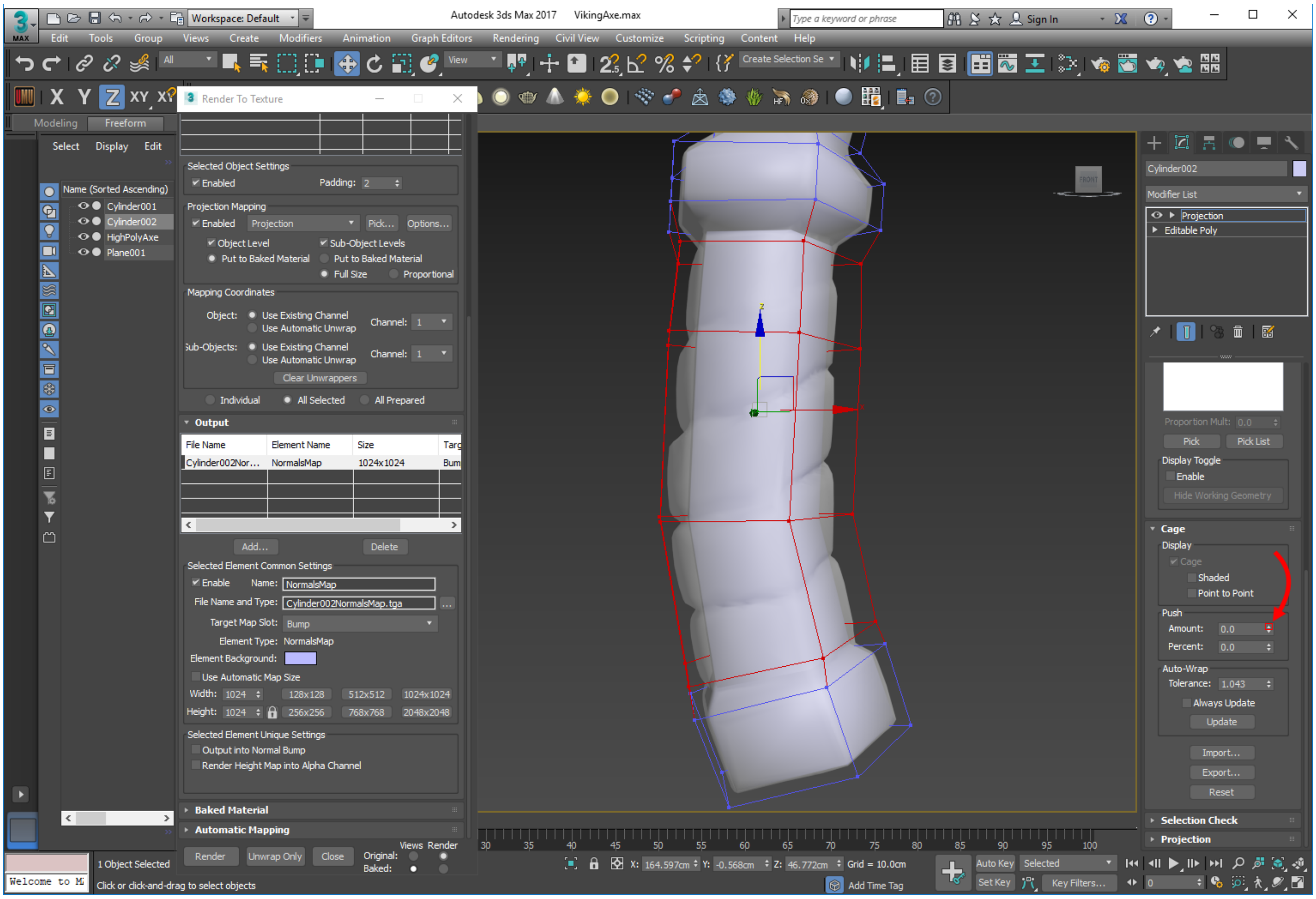
Check handle part, and you can see the cage doesn't cover all



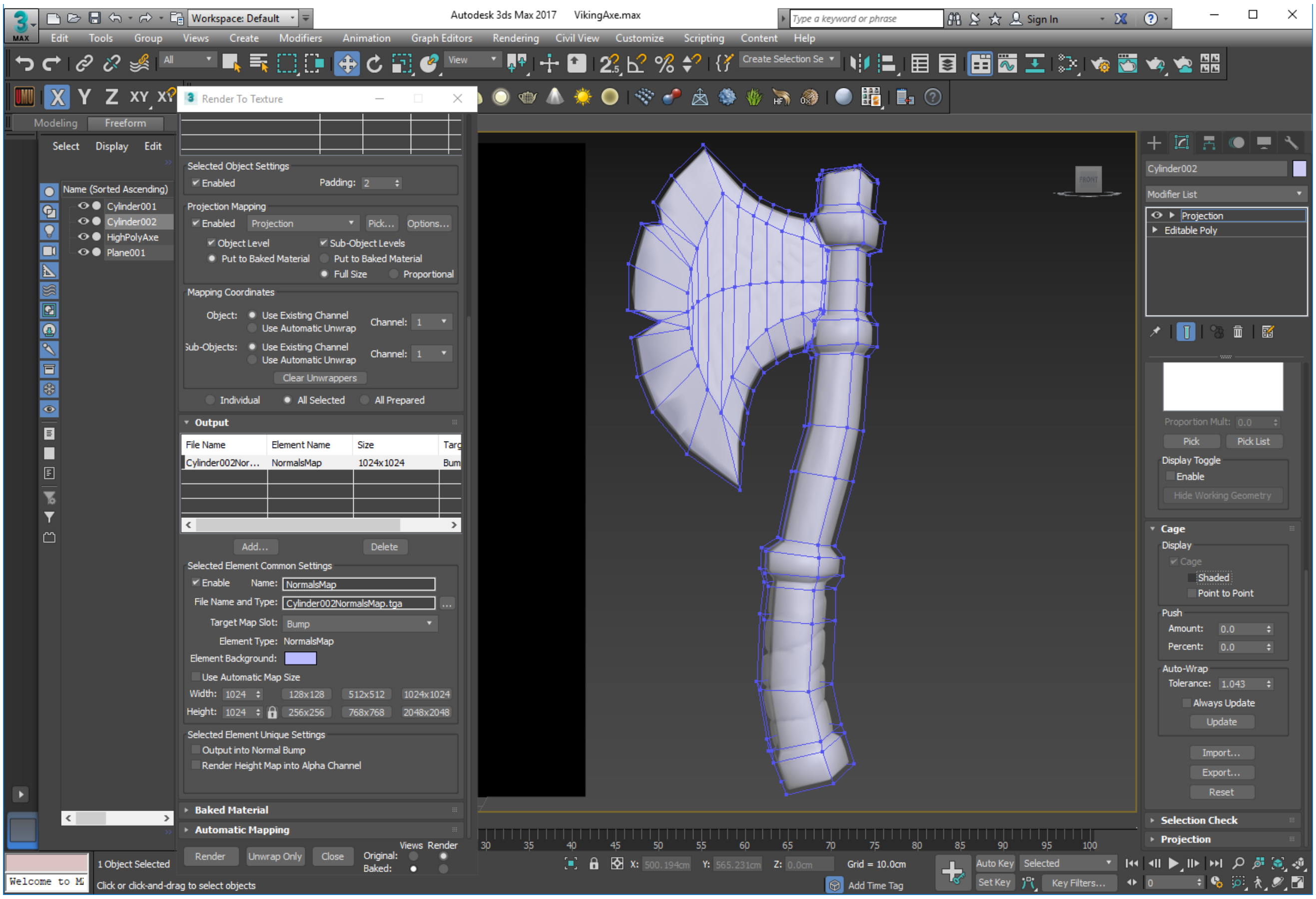
Select cage (vertex)



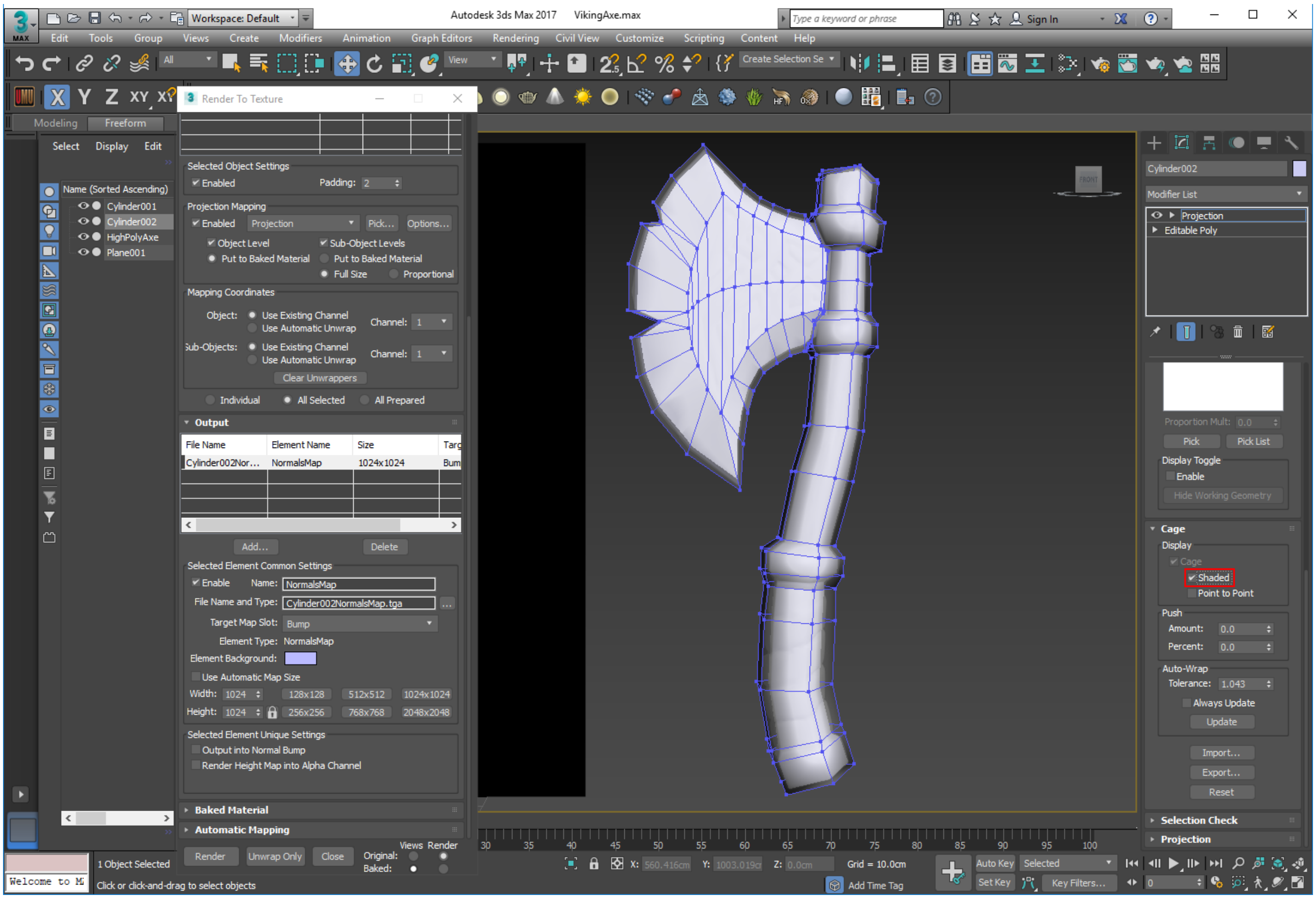
Click ▲ and slowly increase, until the cage fully cover handle part



Done

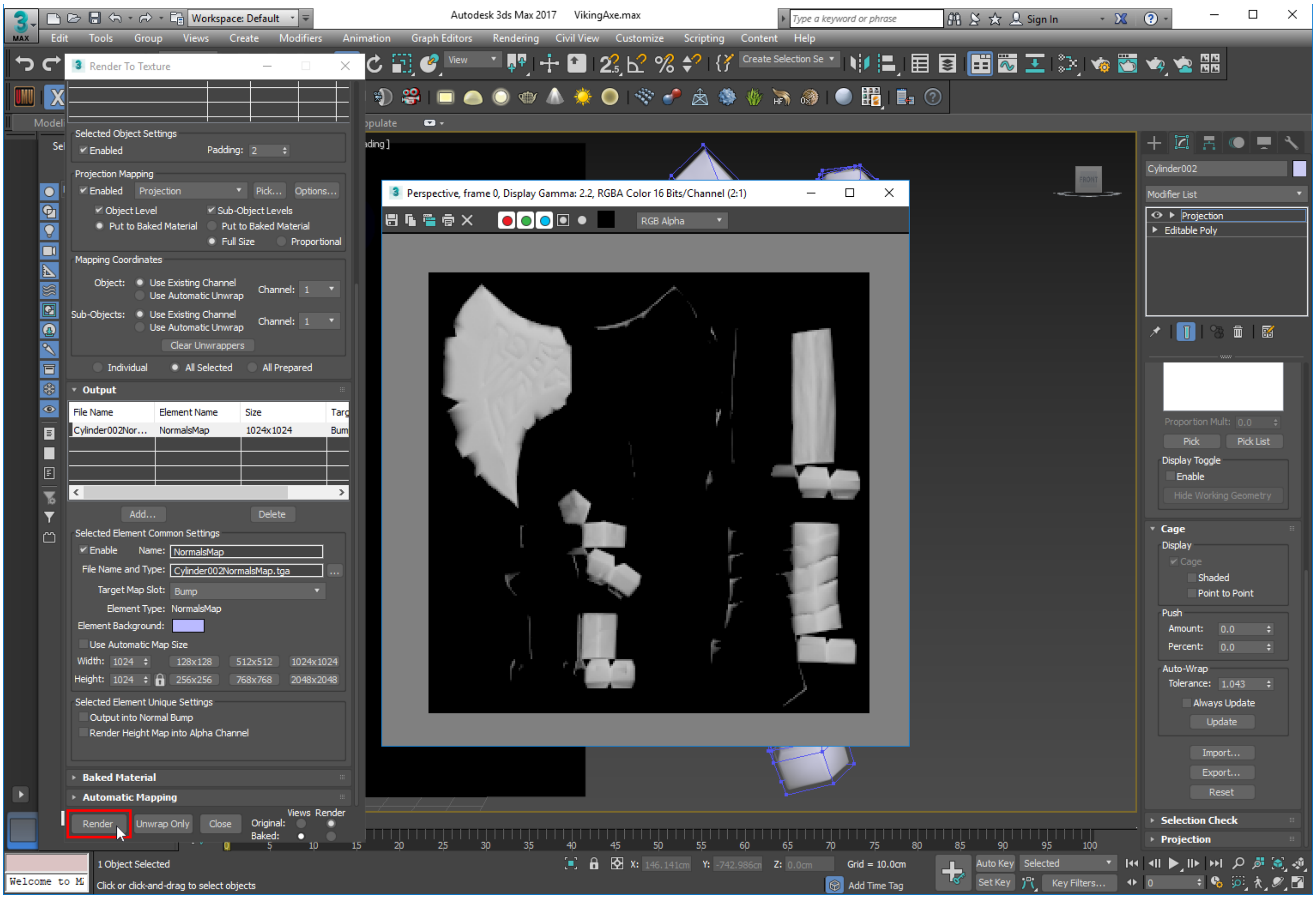


If you still worry, enable “Shaded” to check cage again

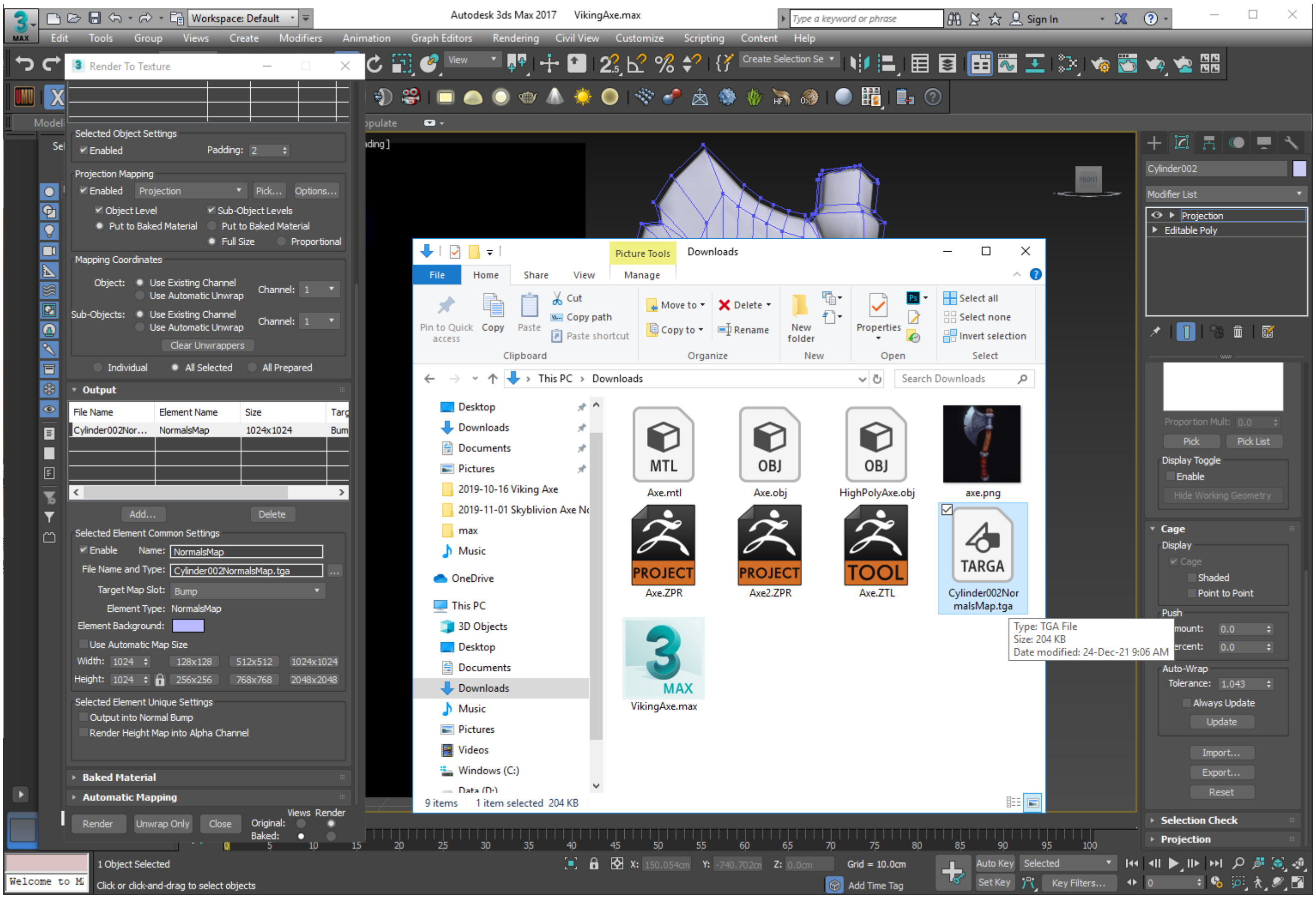


After complete, click Render button to render normal map

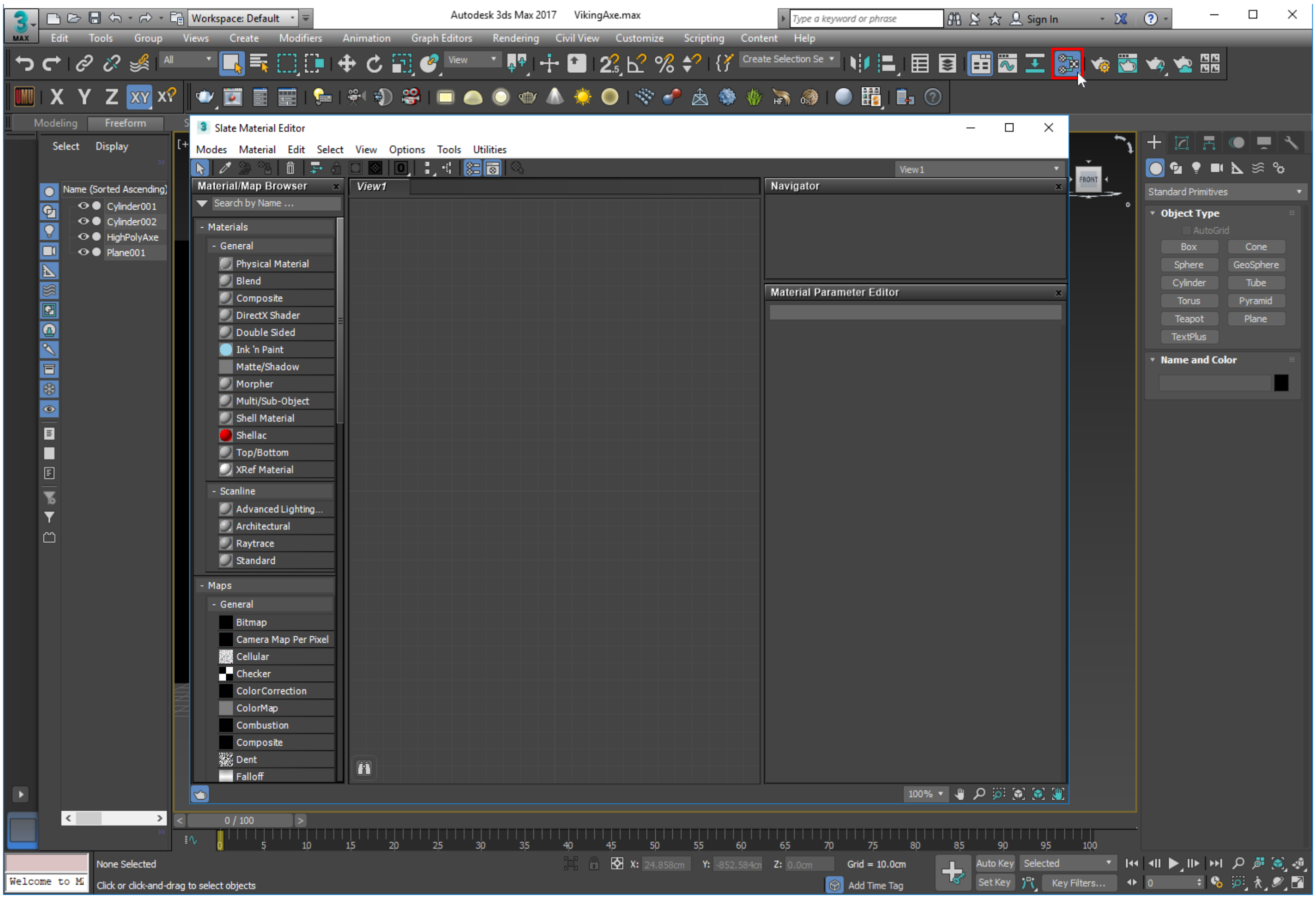
Make sure the render maps doesn’t have red color



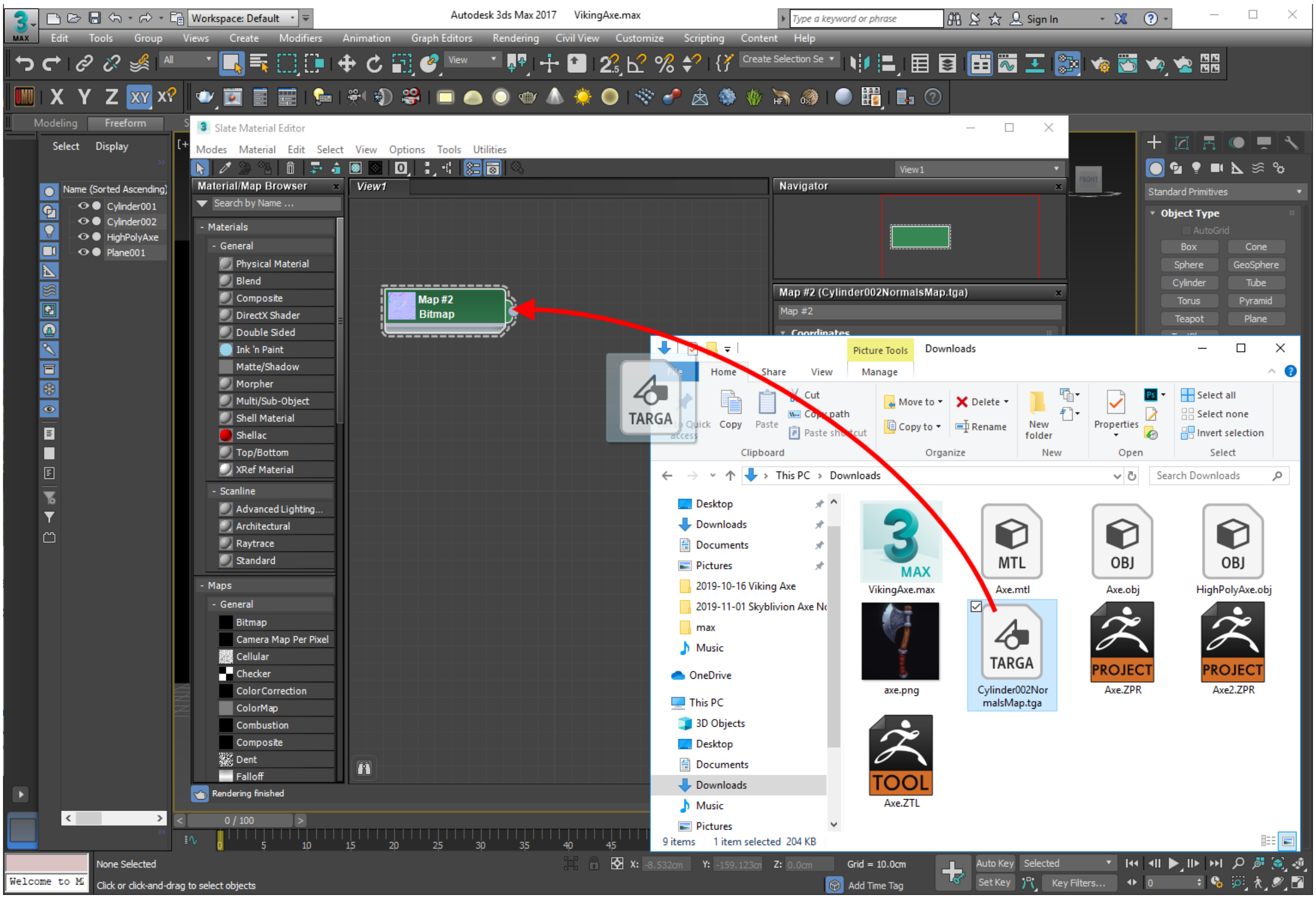
After render, check your output folder, and you will see NormalsMap.tga



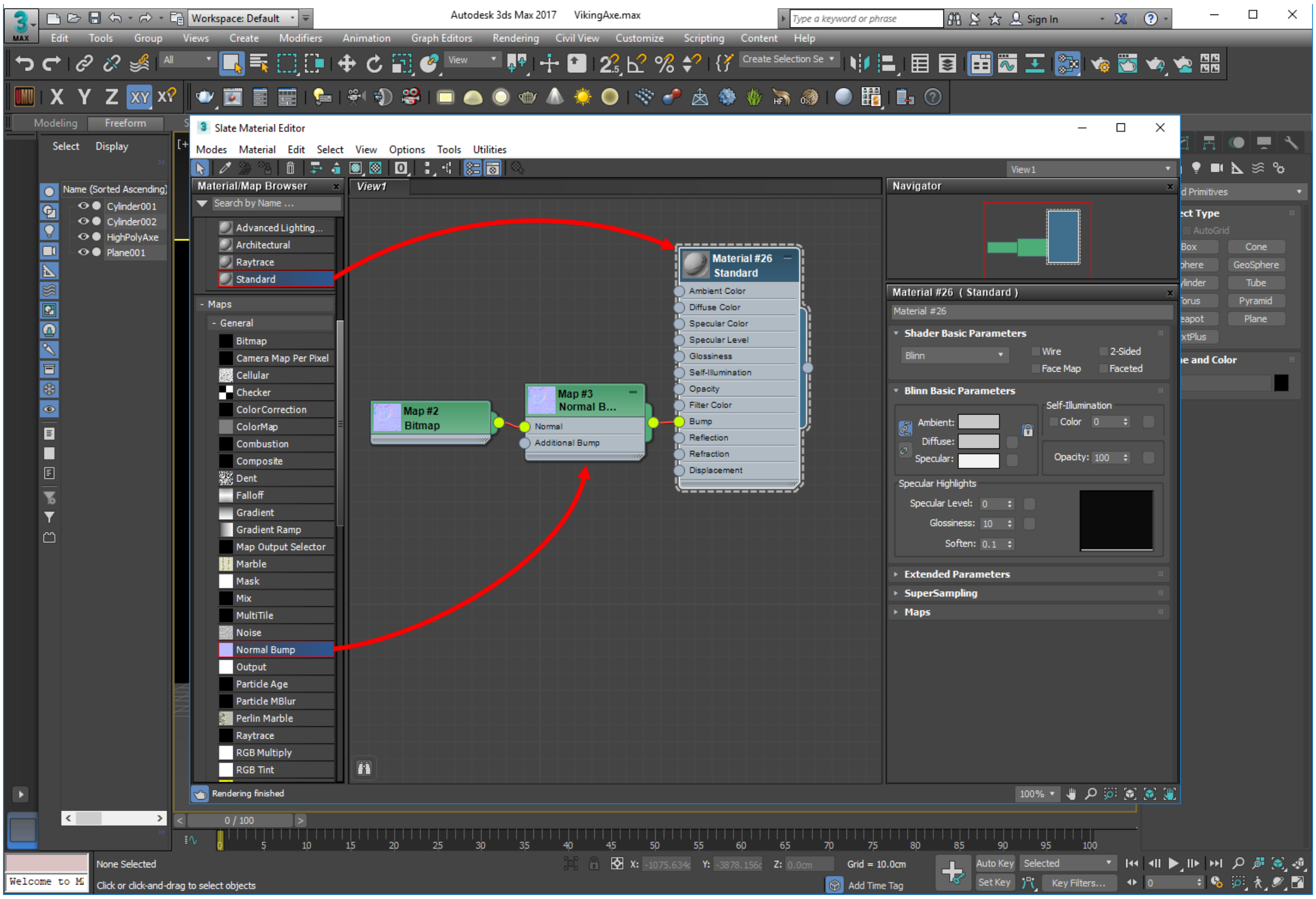
Open Slate Material Editor



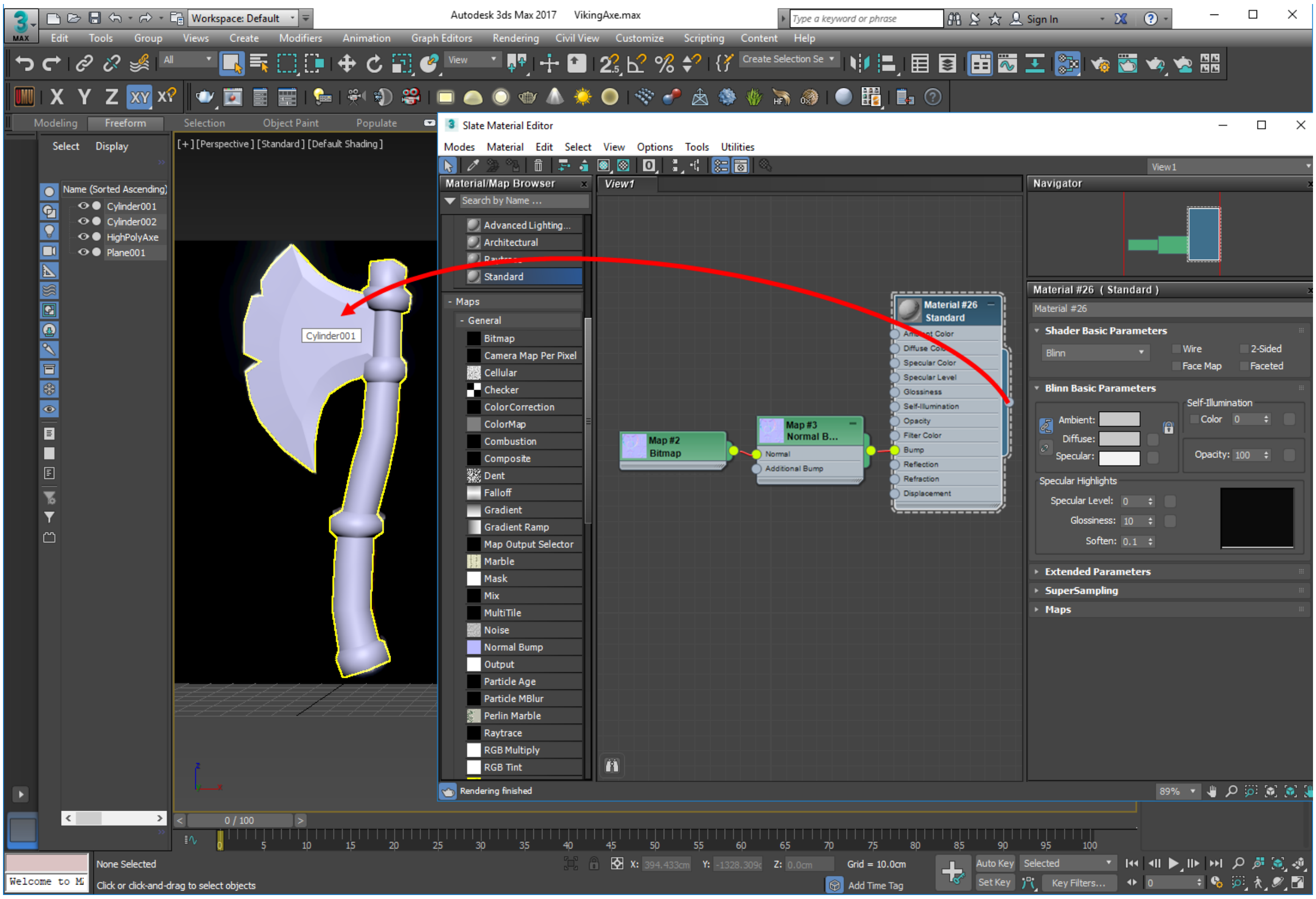
Import NormalsMap.tga into Slate Material Editor



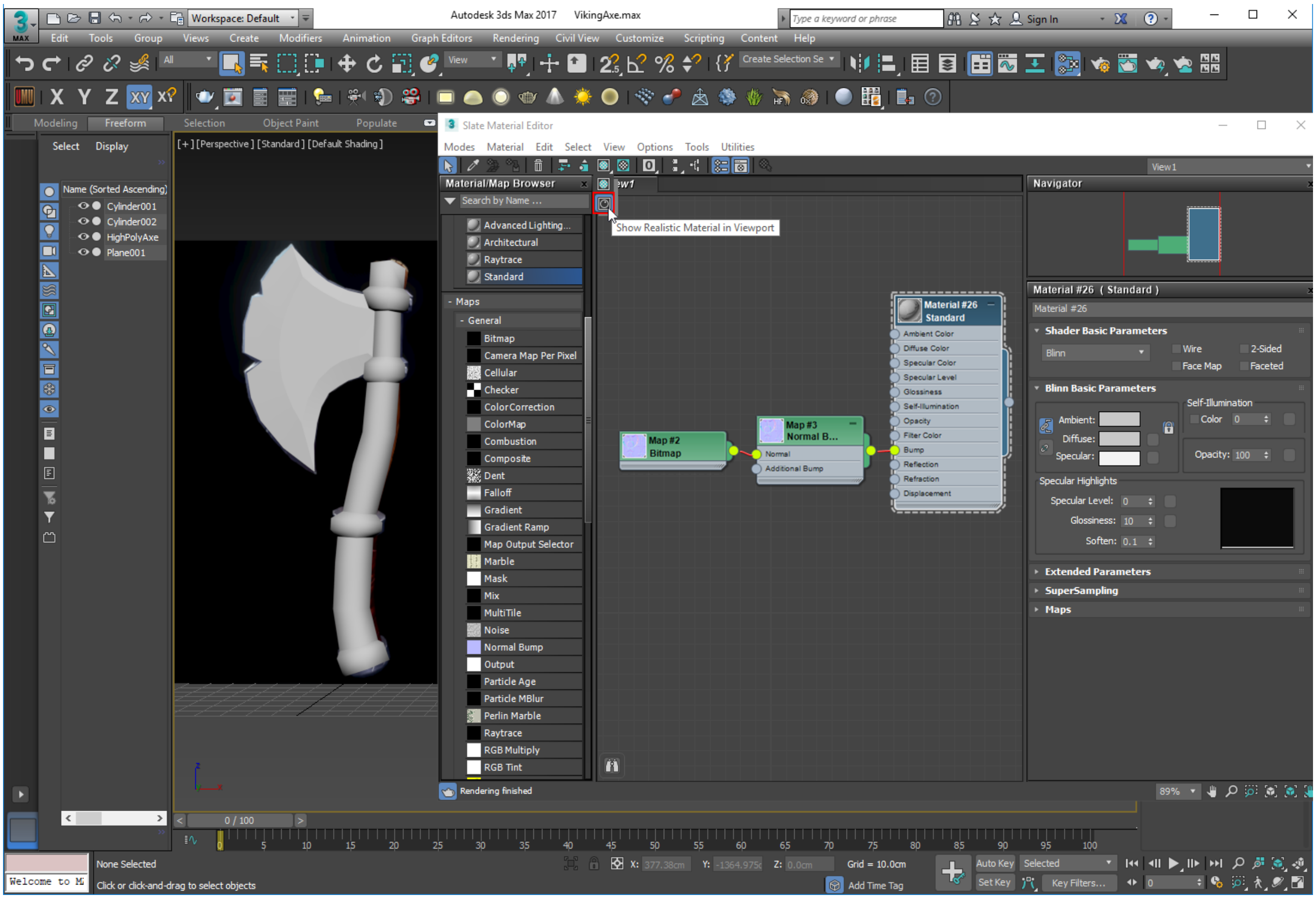
Drag “Standard” material and “Normal Bump” material



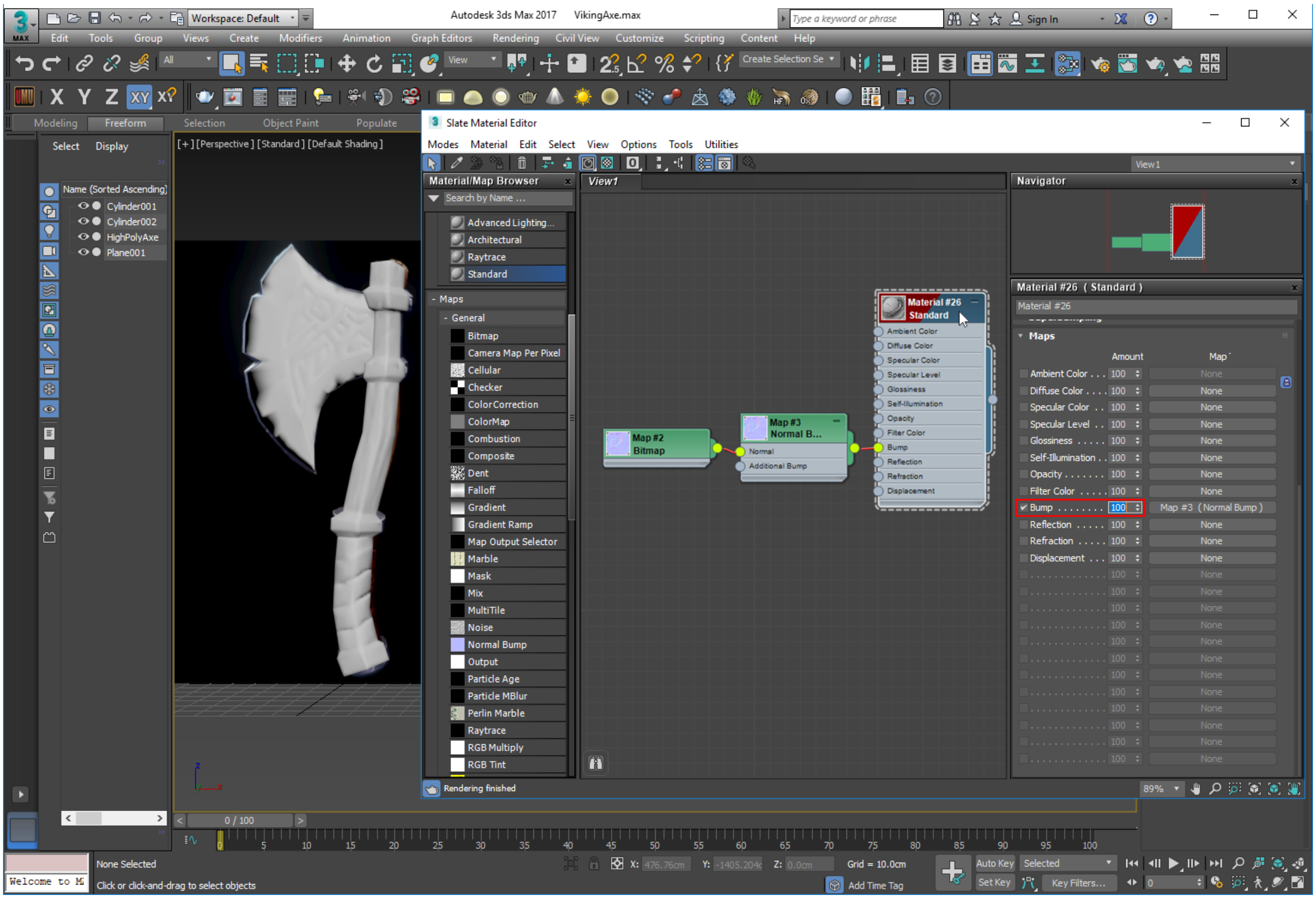
Link material to lowpoly axe, and the axe will turn to gray color



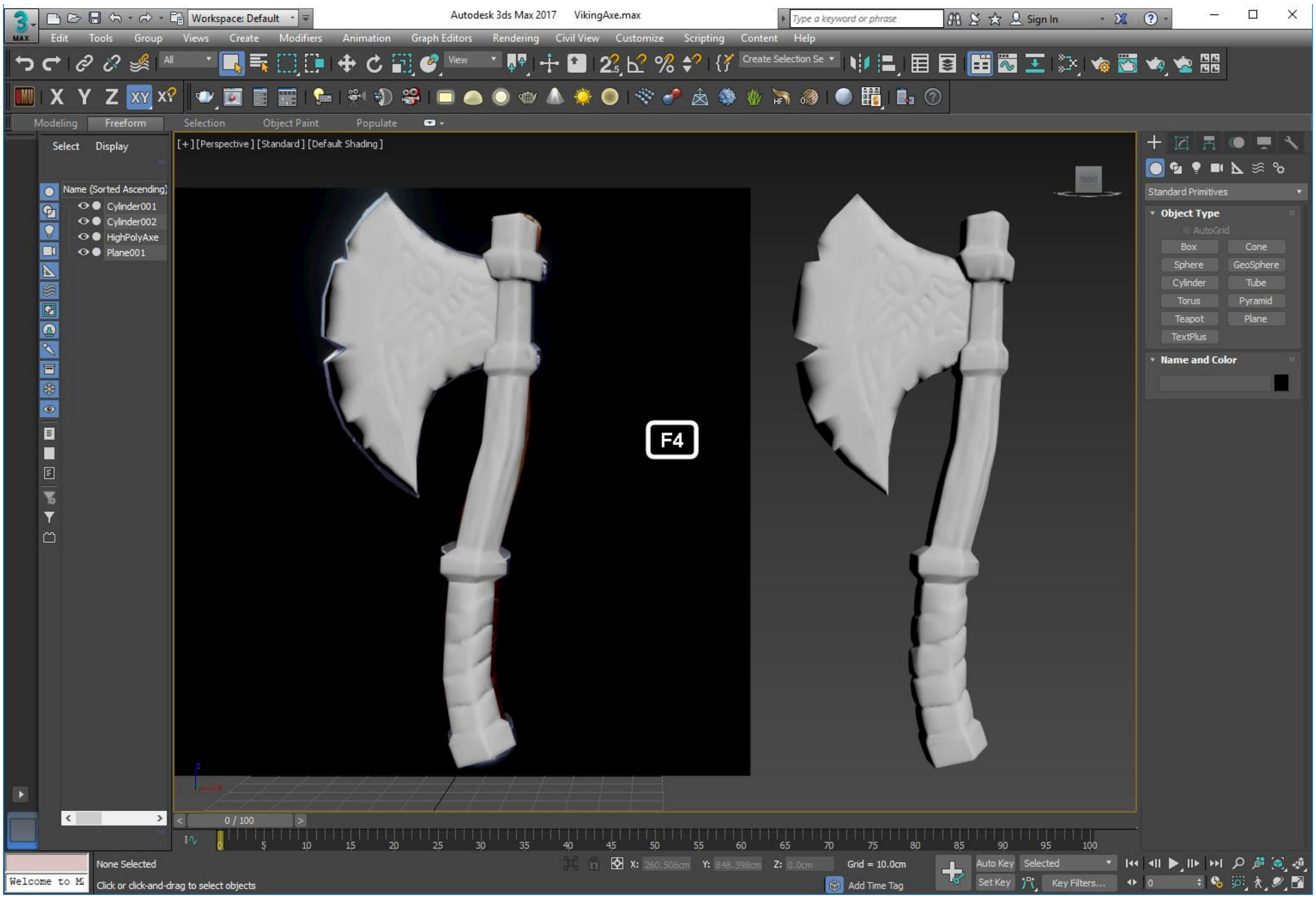
Enable "Show Realistic Material in Viewport"



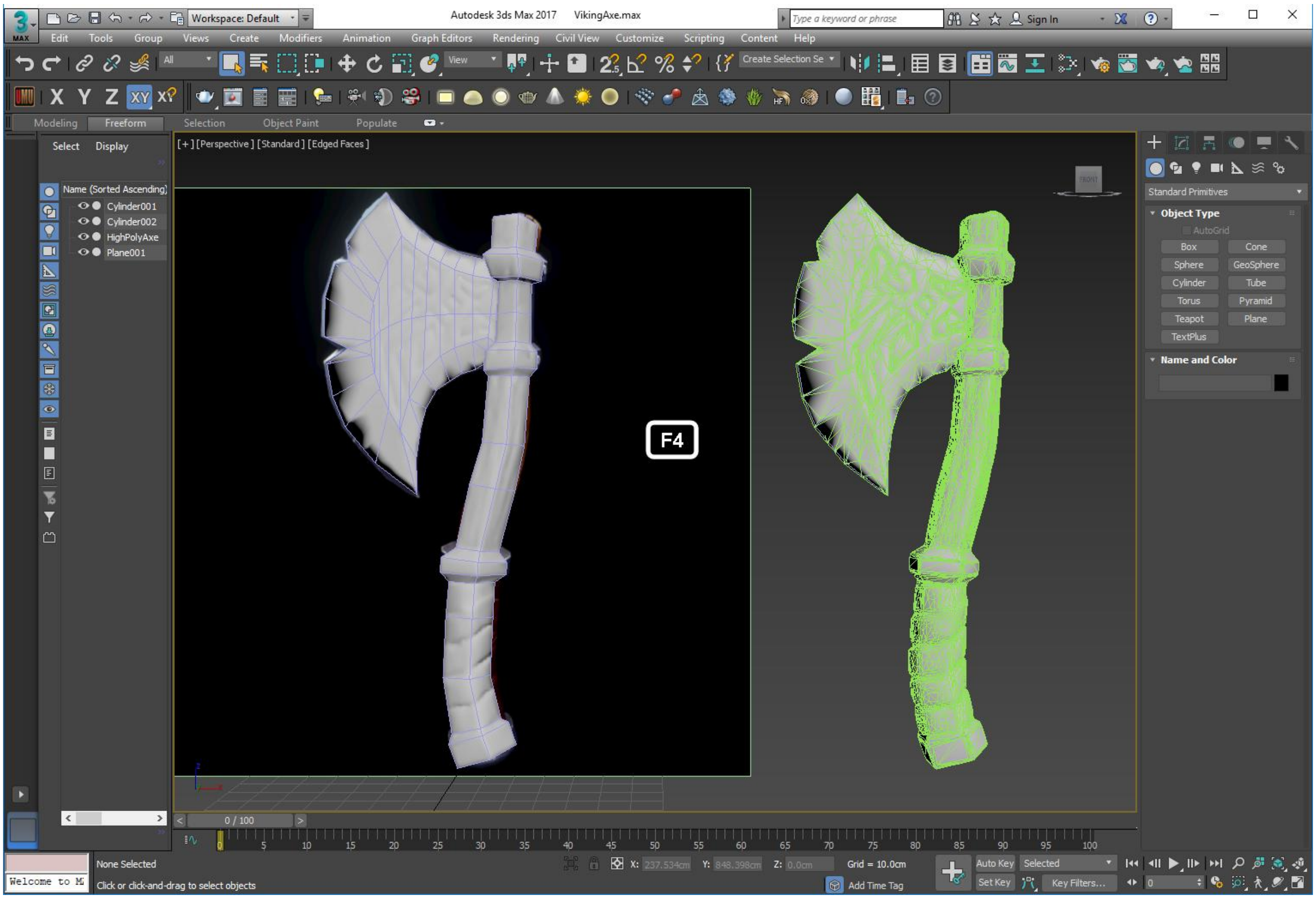
Change Bump 30 → 100



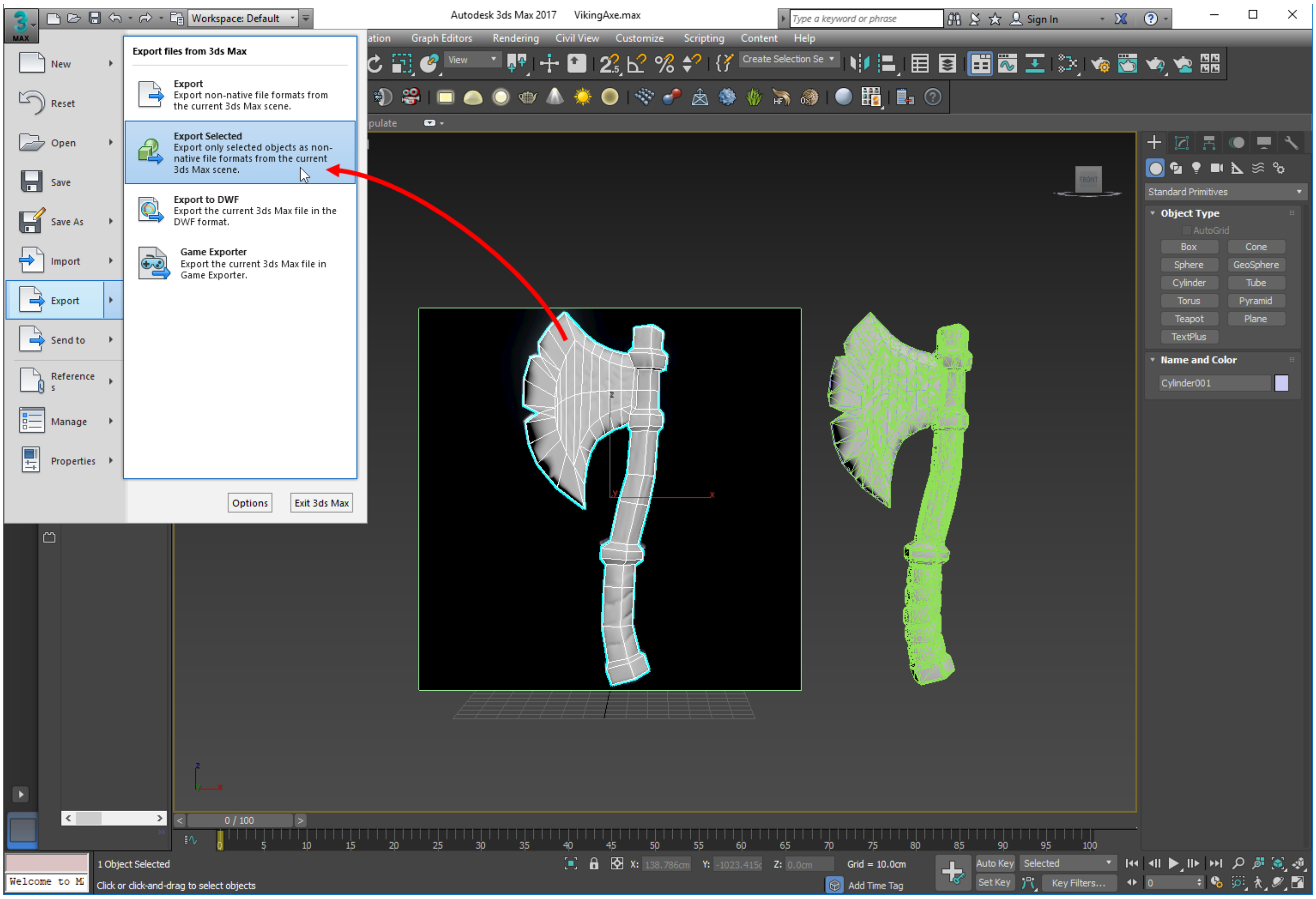
Done, you can press F4 to see it



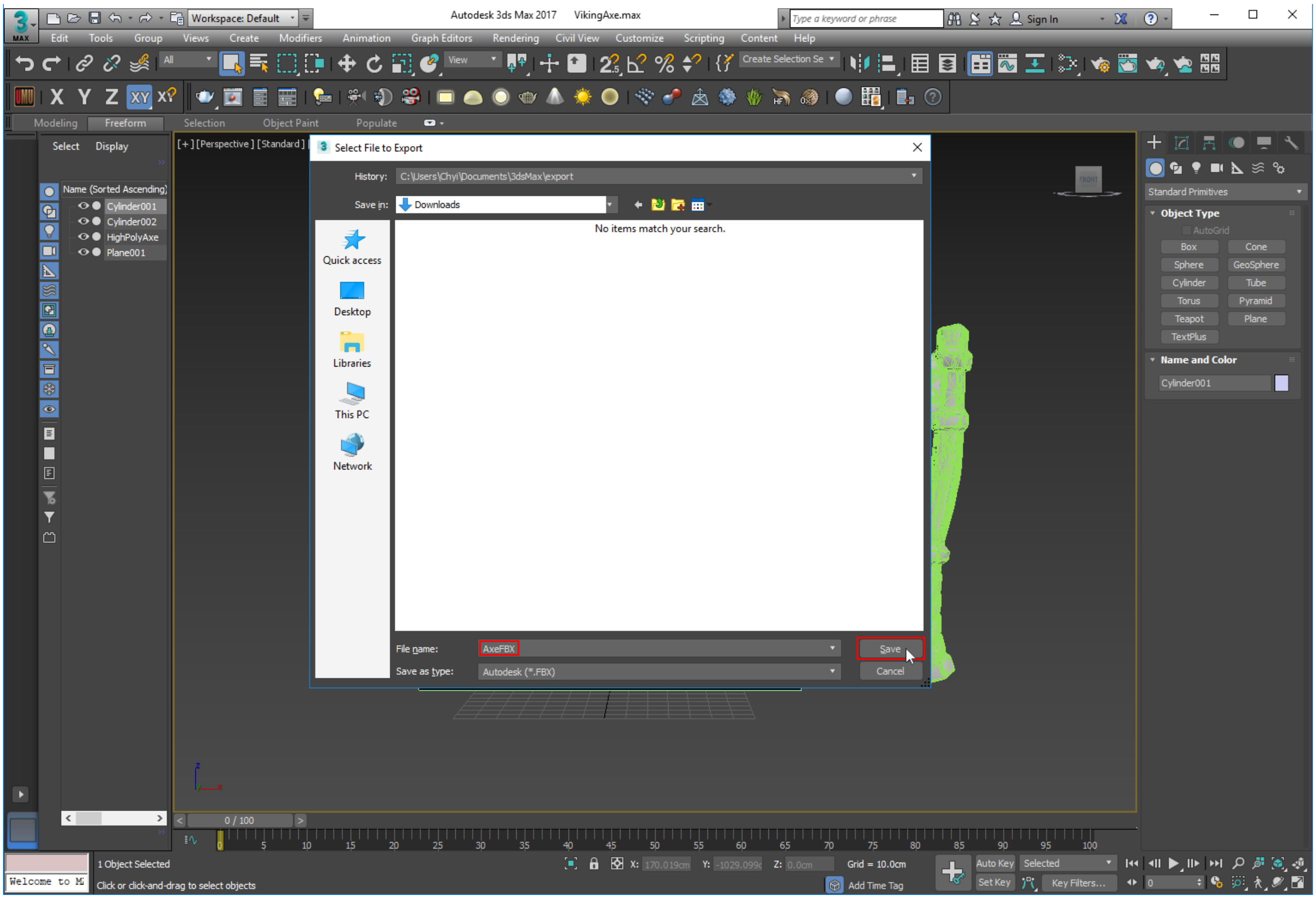
After press F4, you can see left side lowpoly and right side highpoly



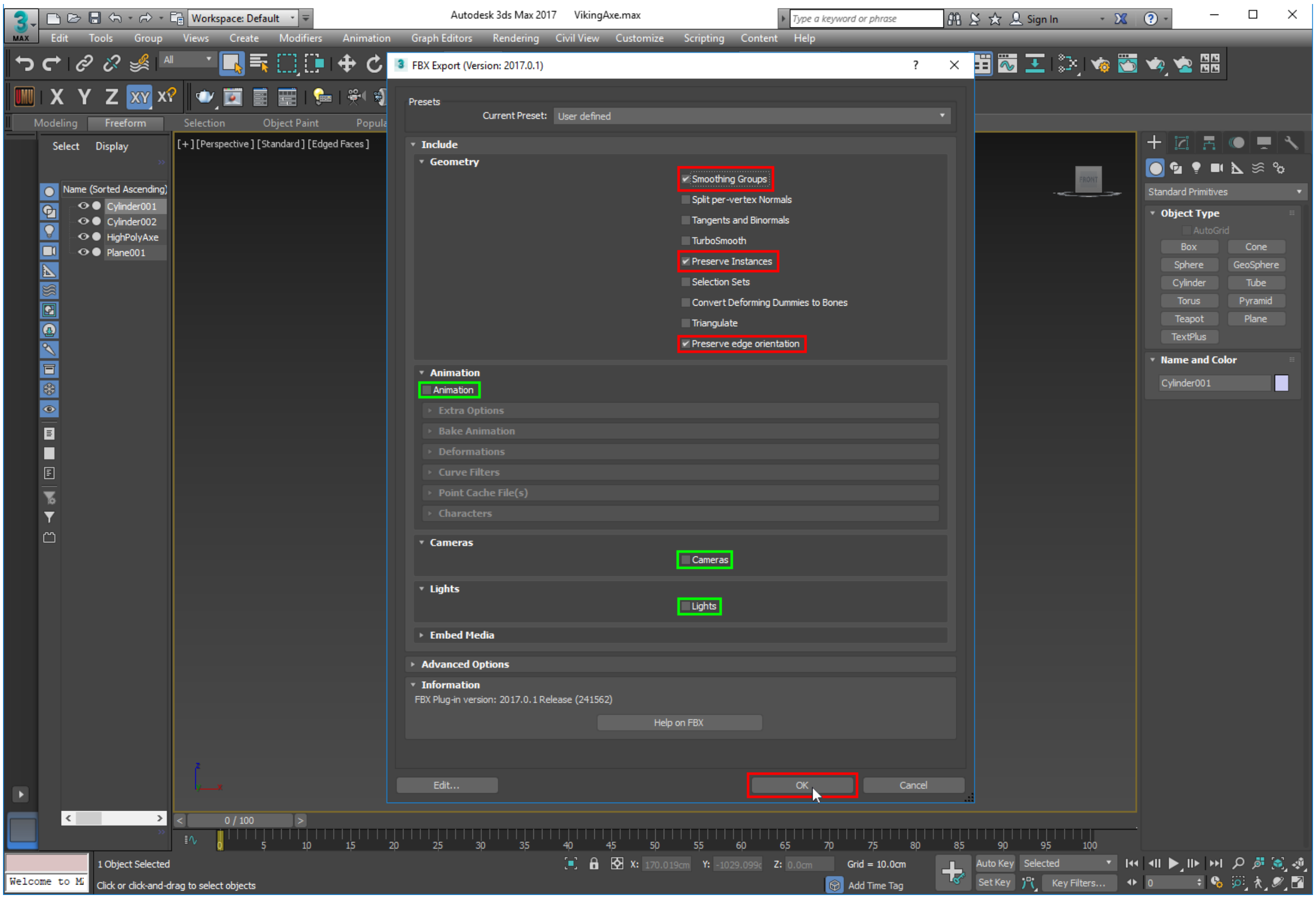
Select lowpoly axe and click export selected



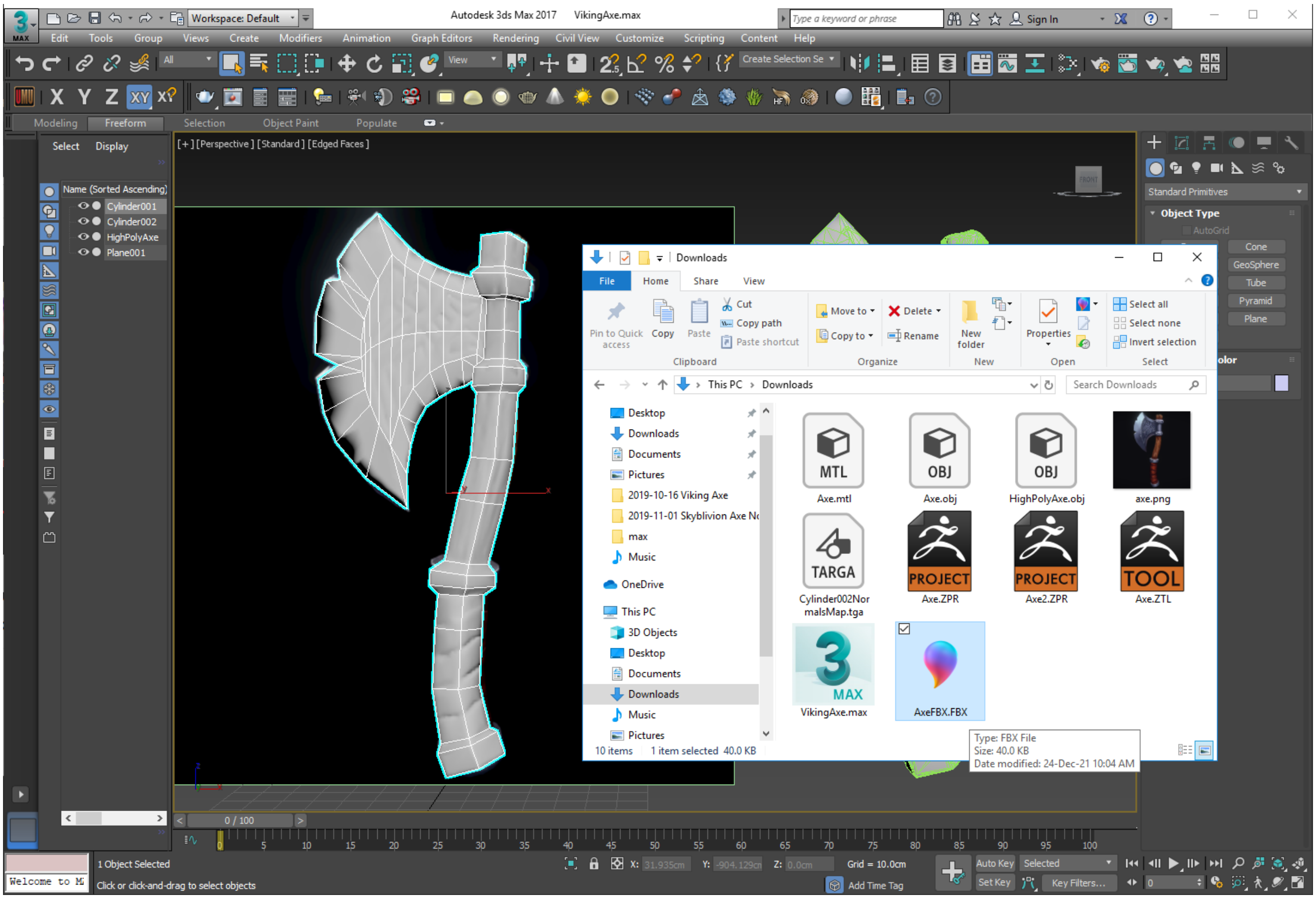
Export it as FBX



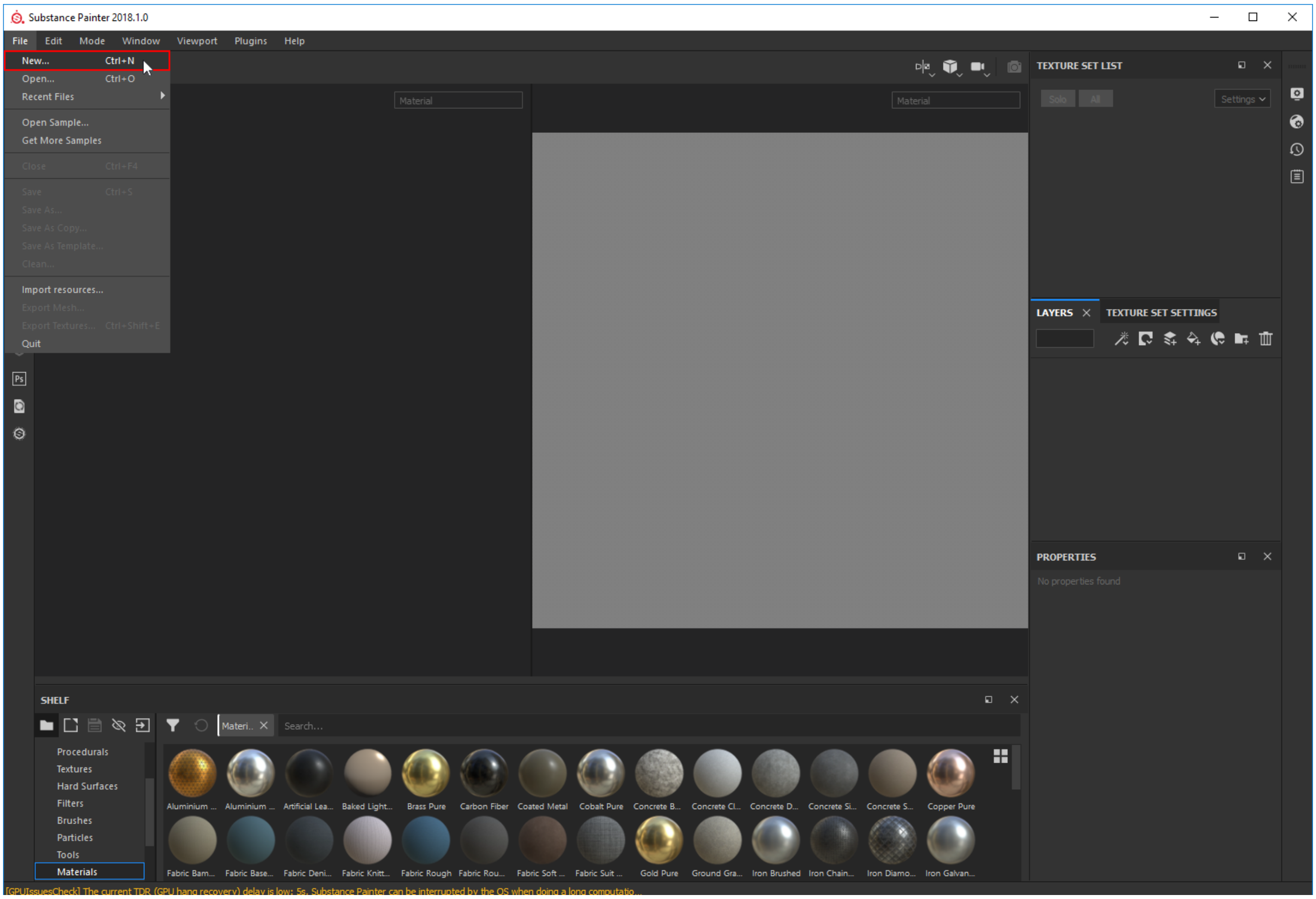
Enable Smoothing Group, Preserve Instances and Preserve edge orientation
And disable Animation, Cameras and Lights



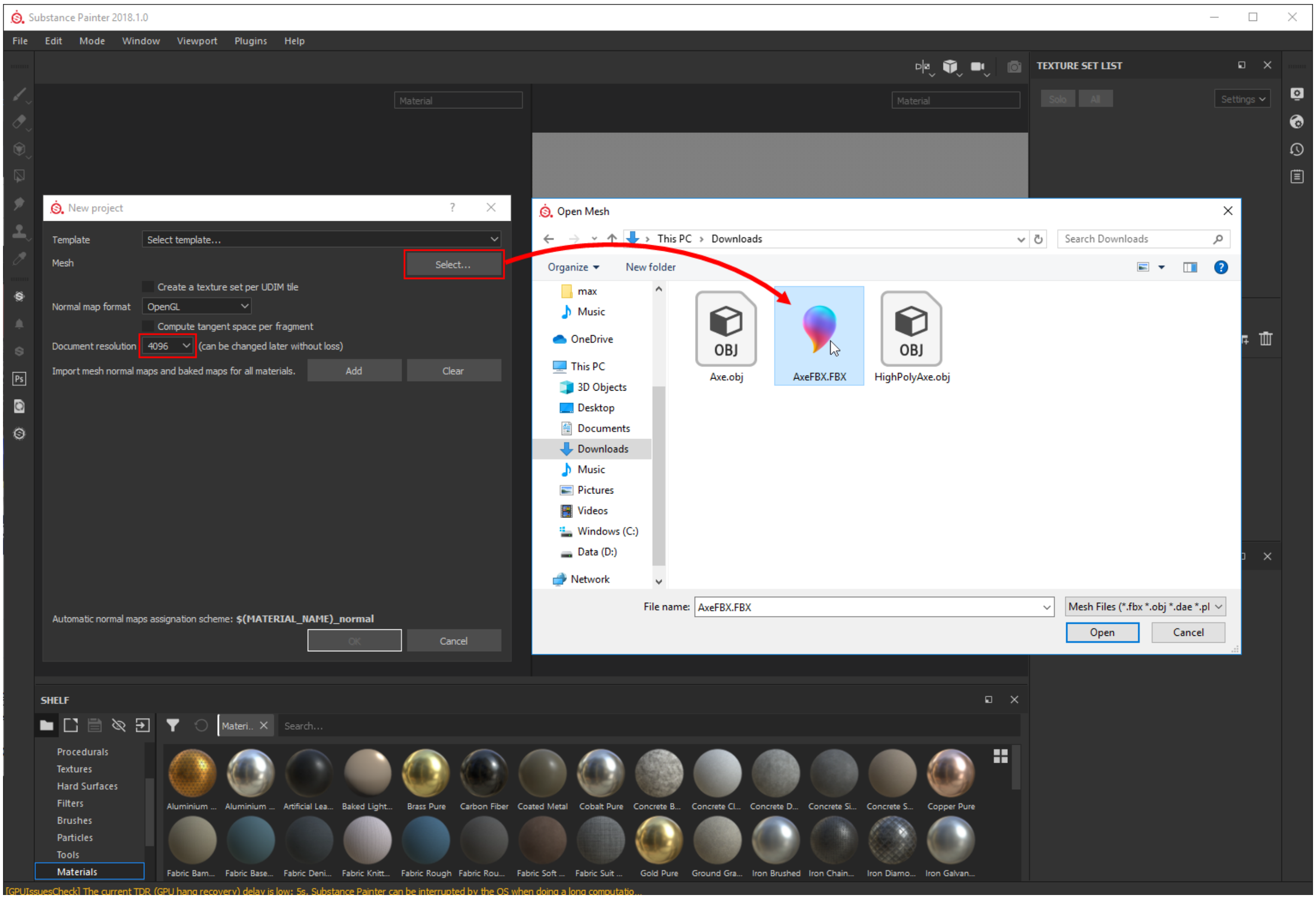
Check output folder and you can see FBX



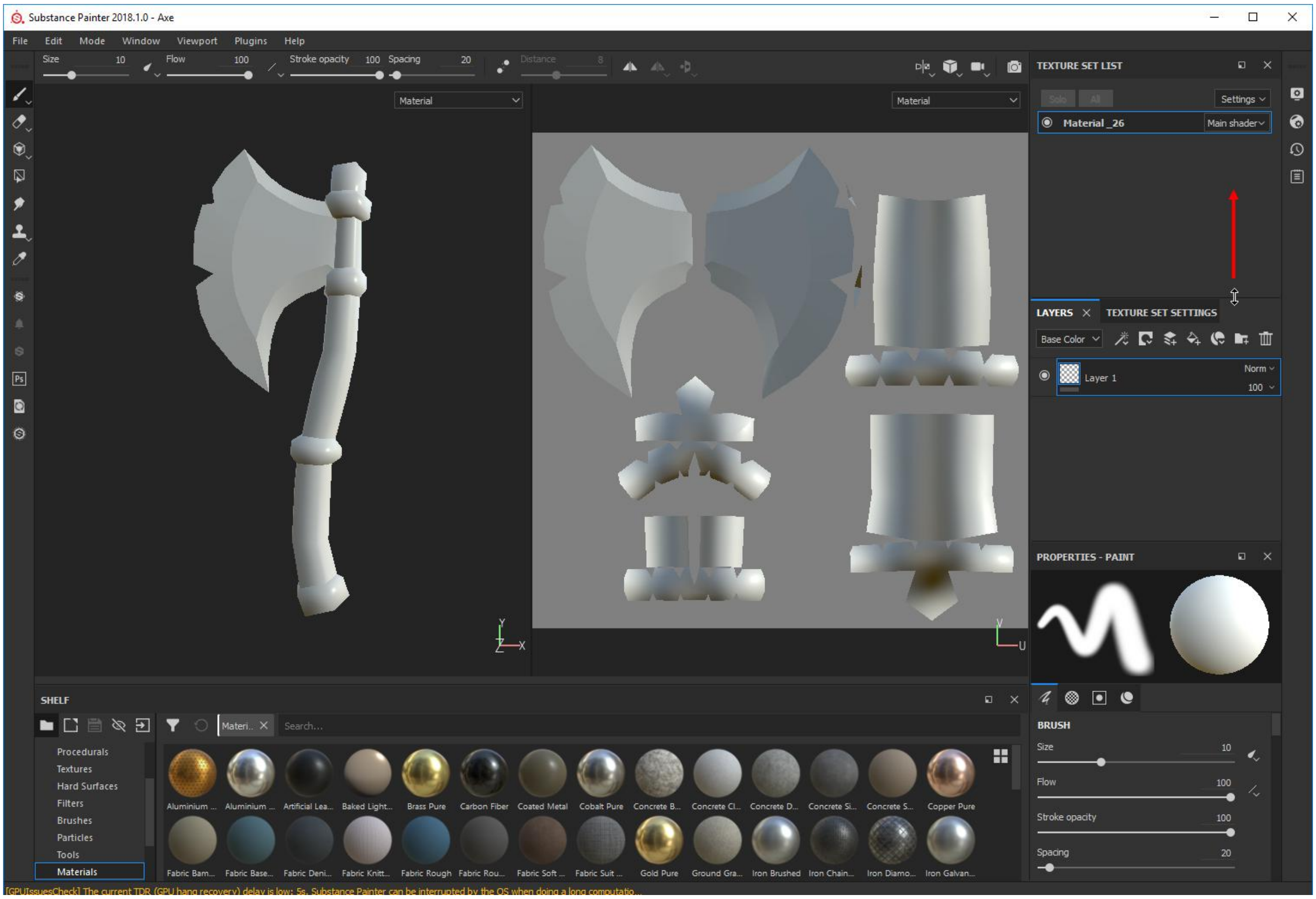
Now open Substance Painter, click “New...”



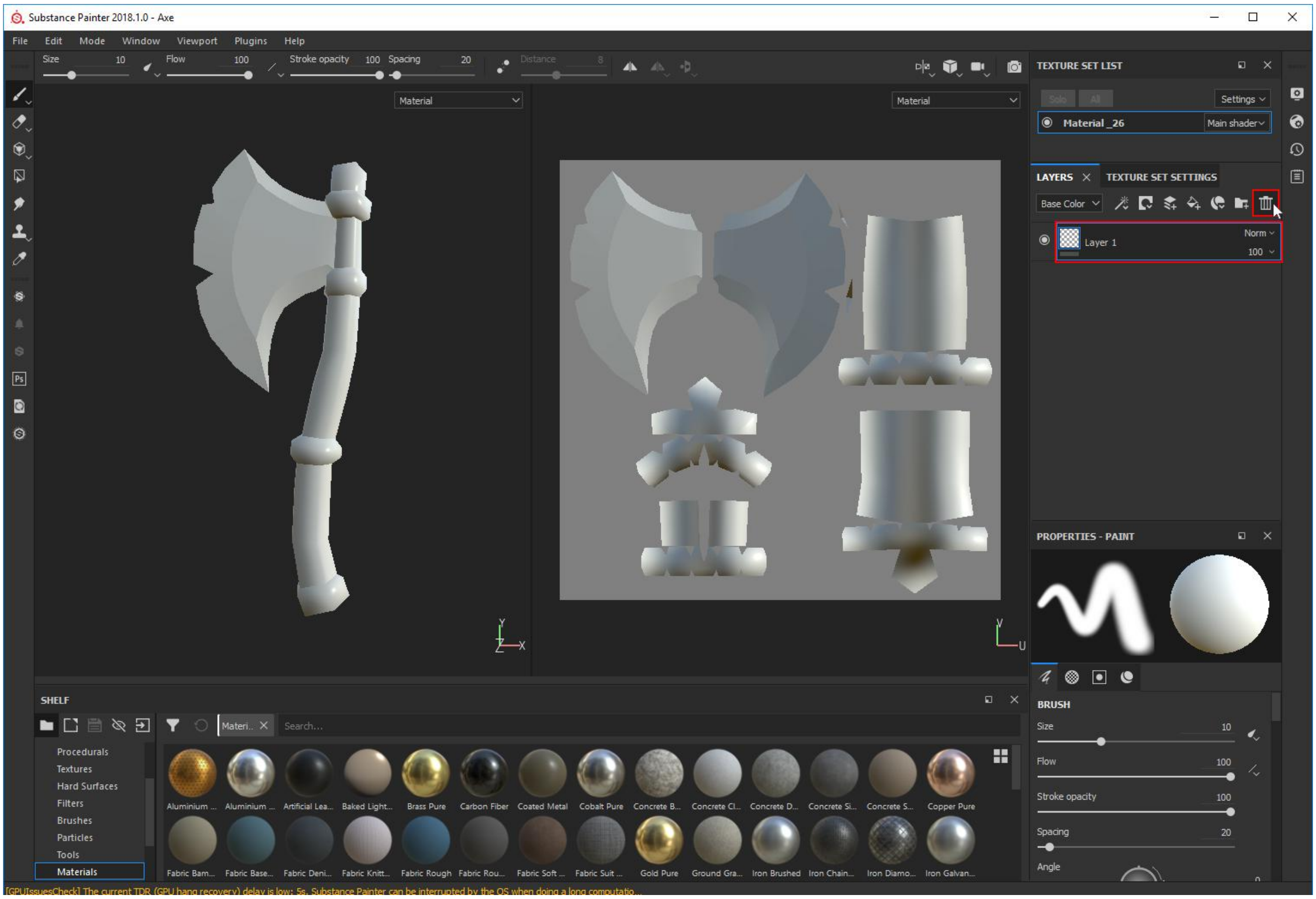
Select FBX and document resolution: 4096



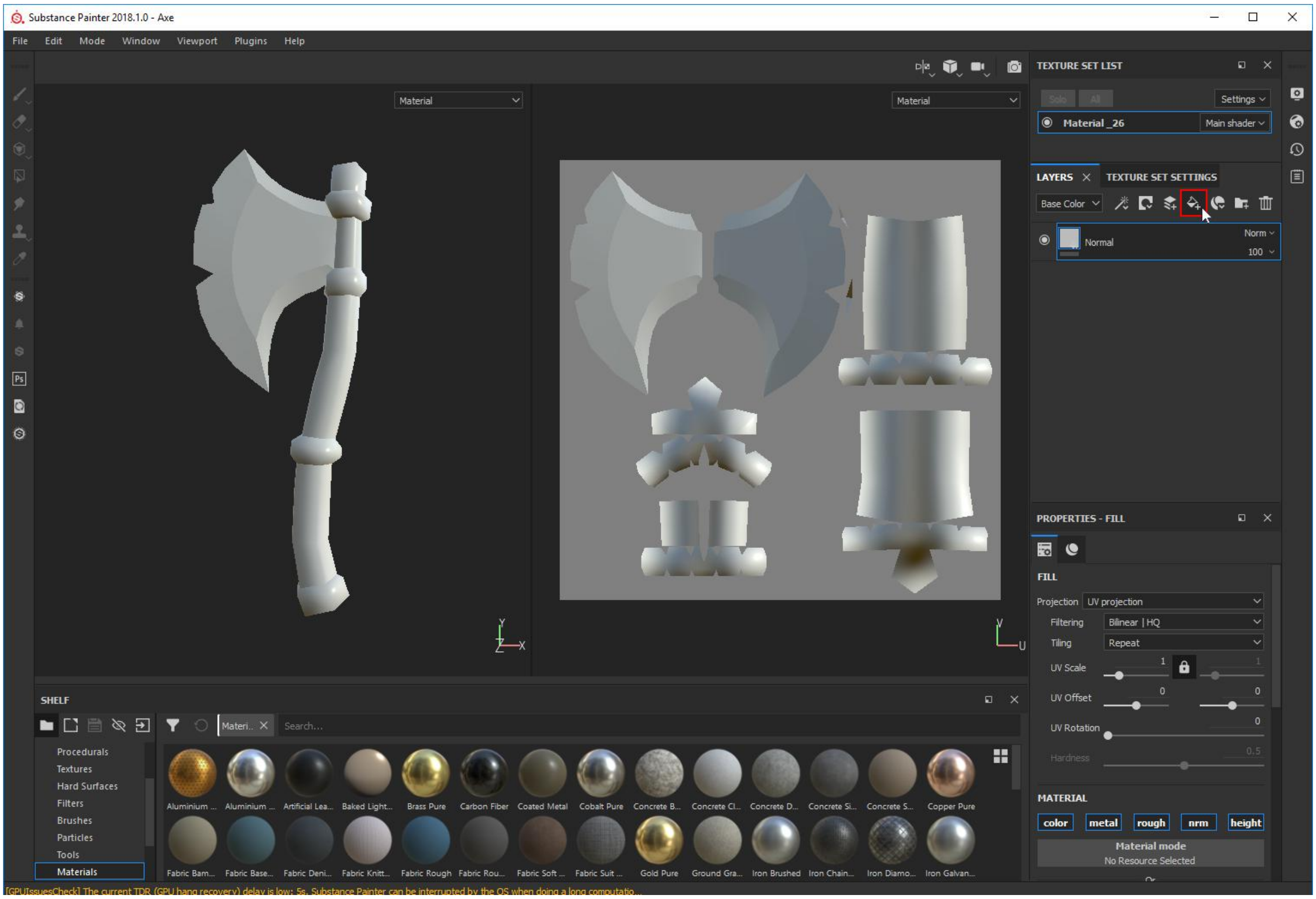
Here you can see your lowpoly axe



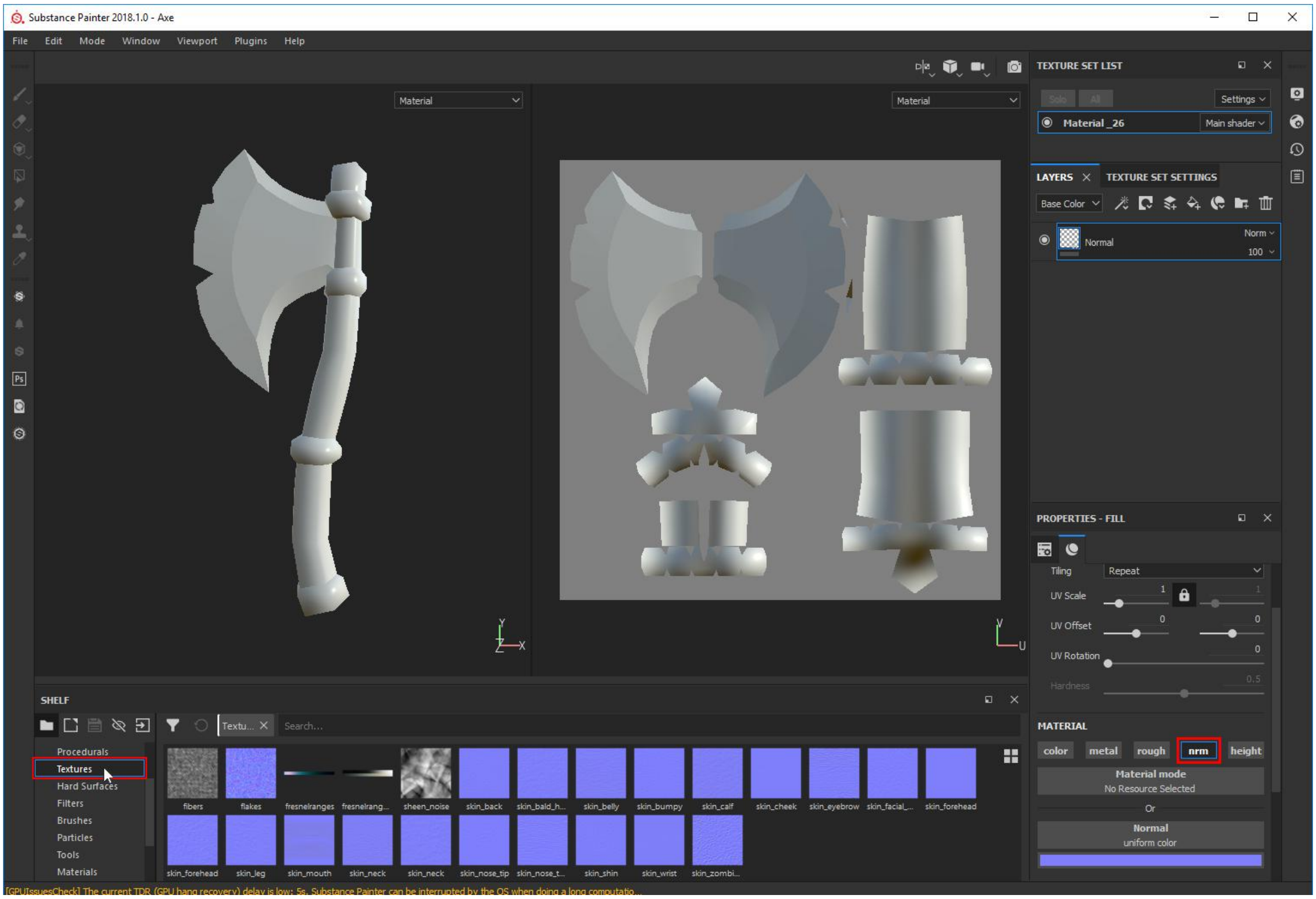
Delete “Layer 1” because we don’t use it



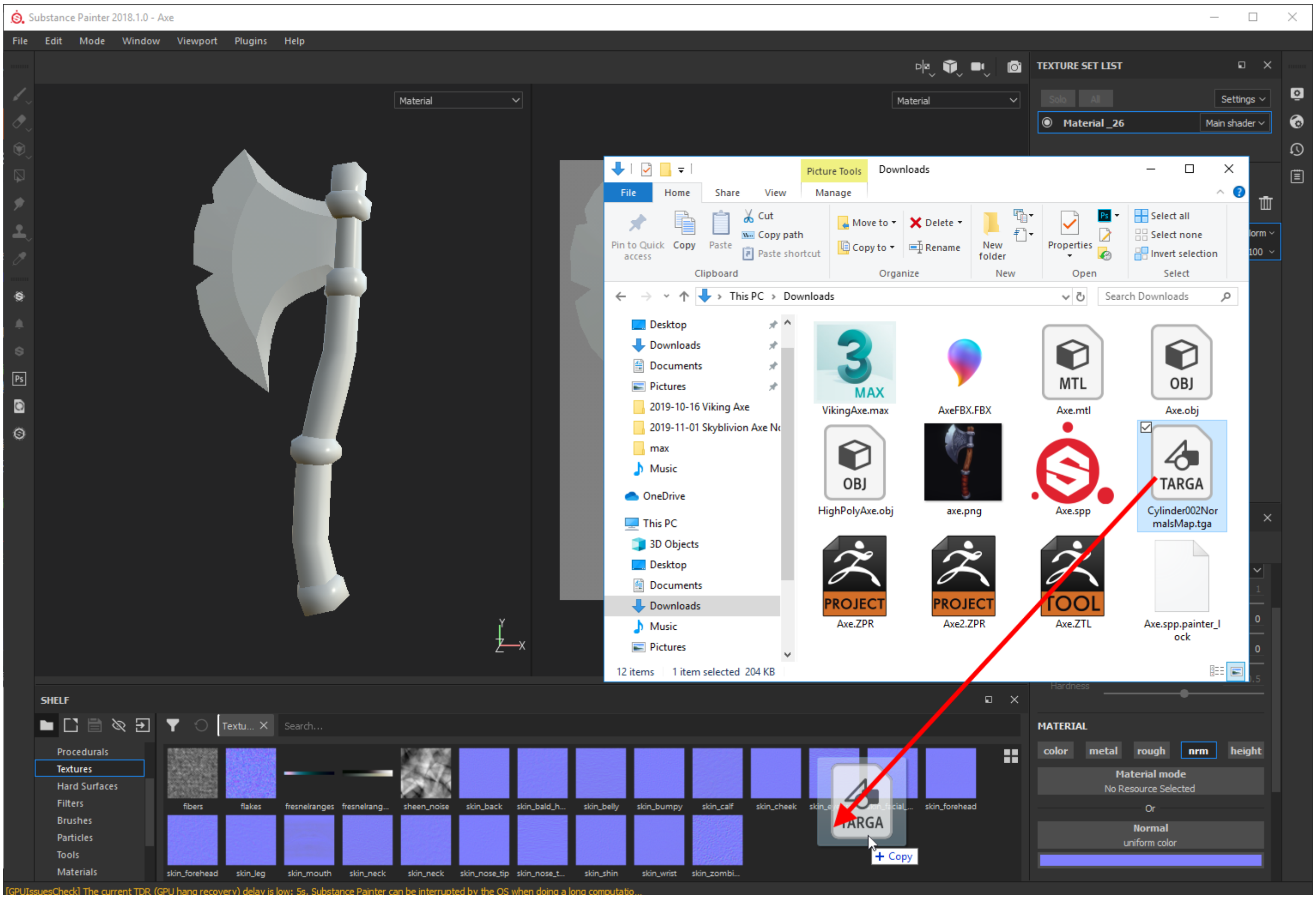
Click “Add Fill Layer” and name it as Normal



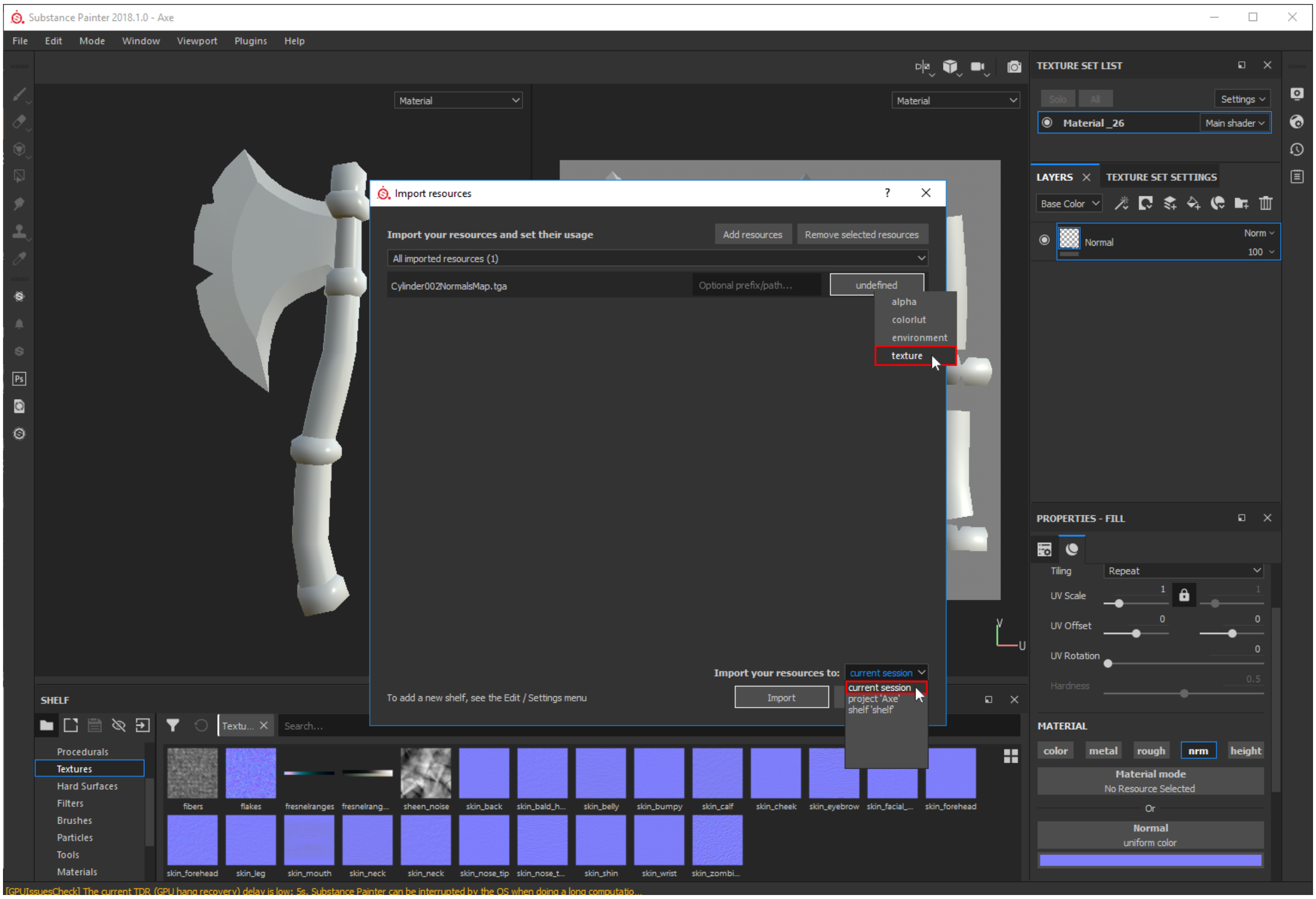
Under properties, disable all, except nrm (normal)



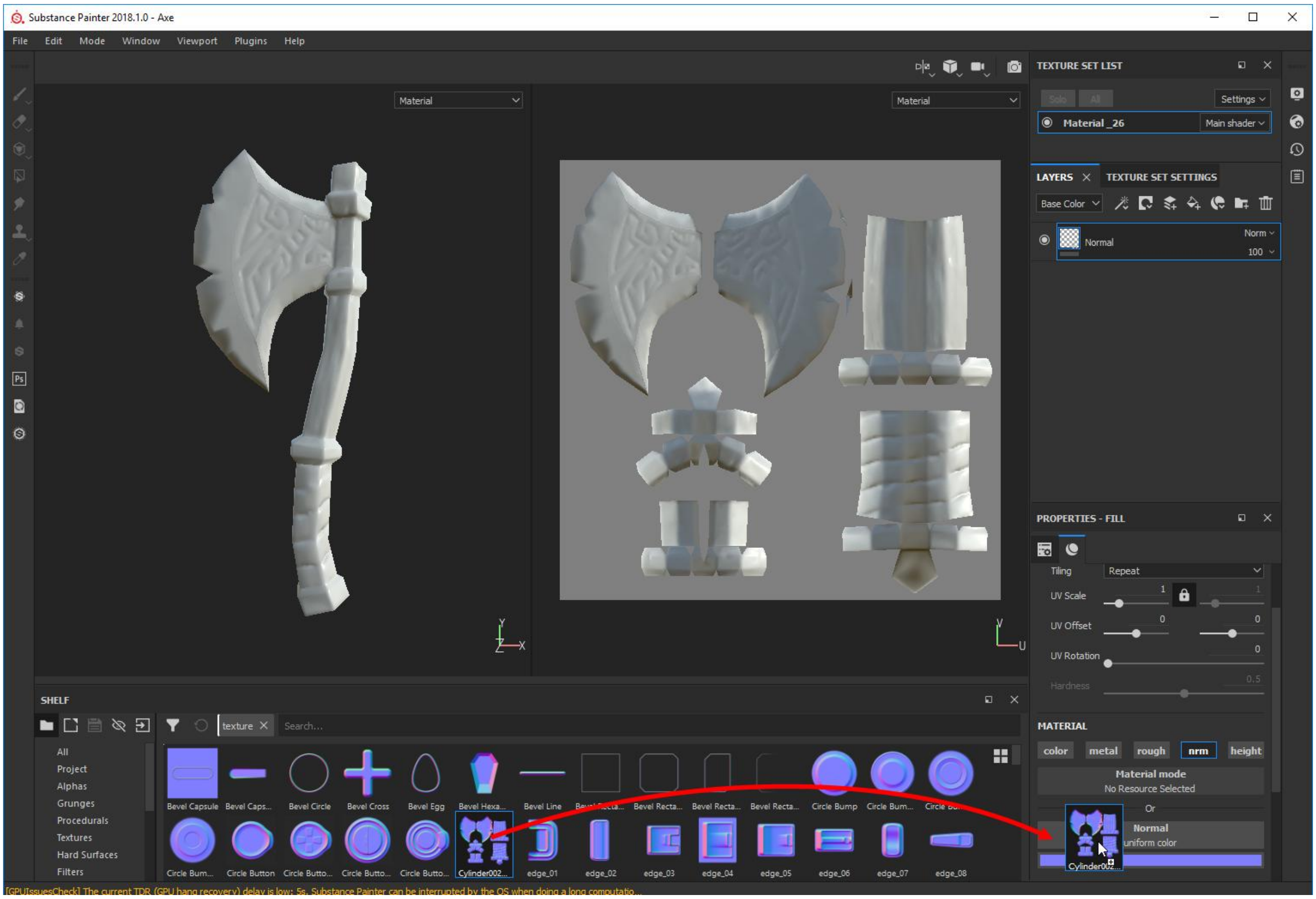
Click “Textures” and import NormalsMap.tga



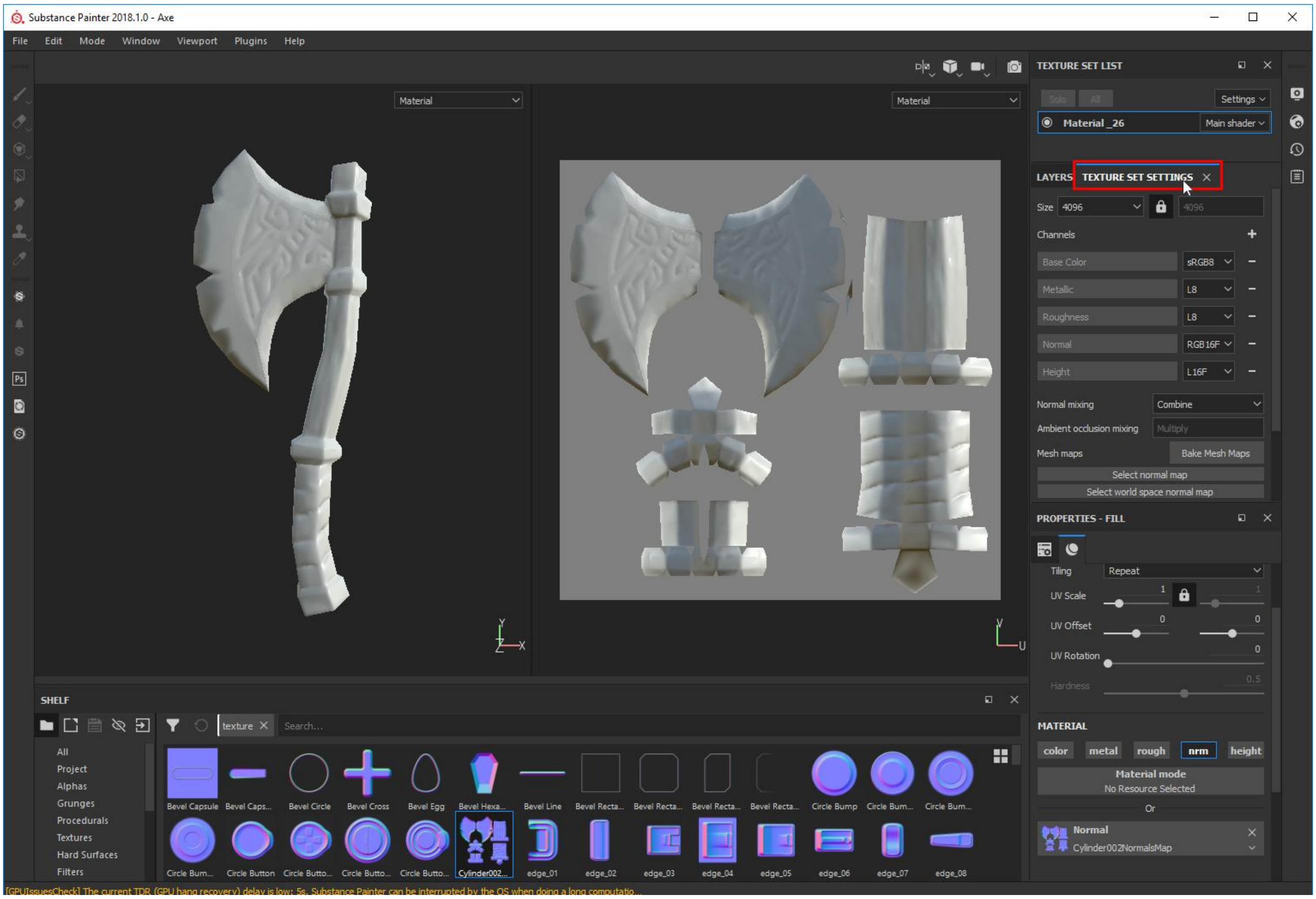
Select texture and current session



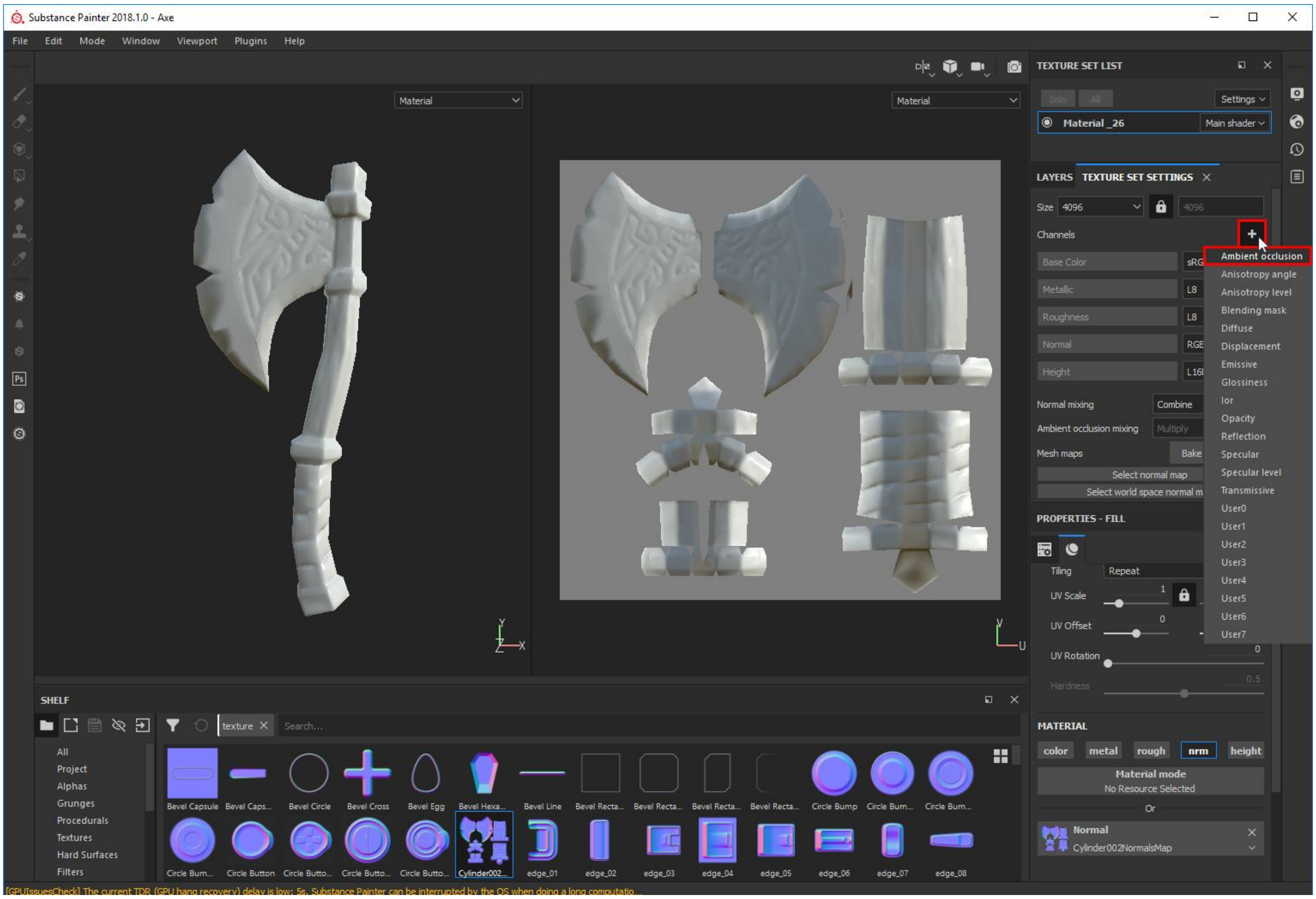
Drag NormalsMap.tga to “Normal”



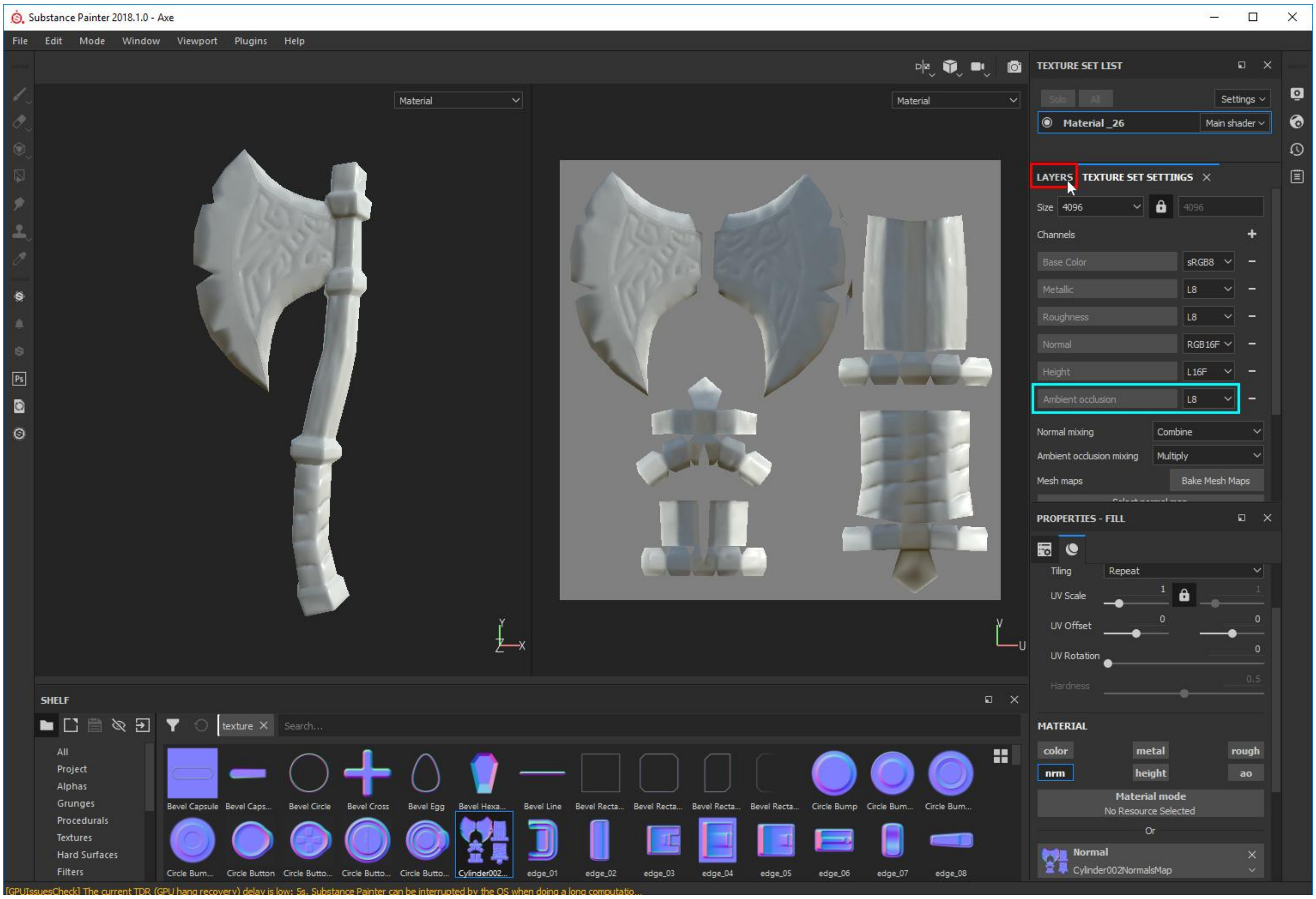
Click Texture Set Settings



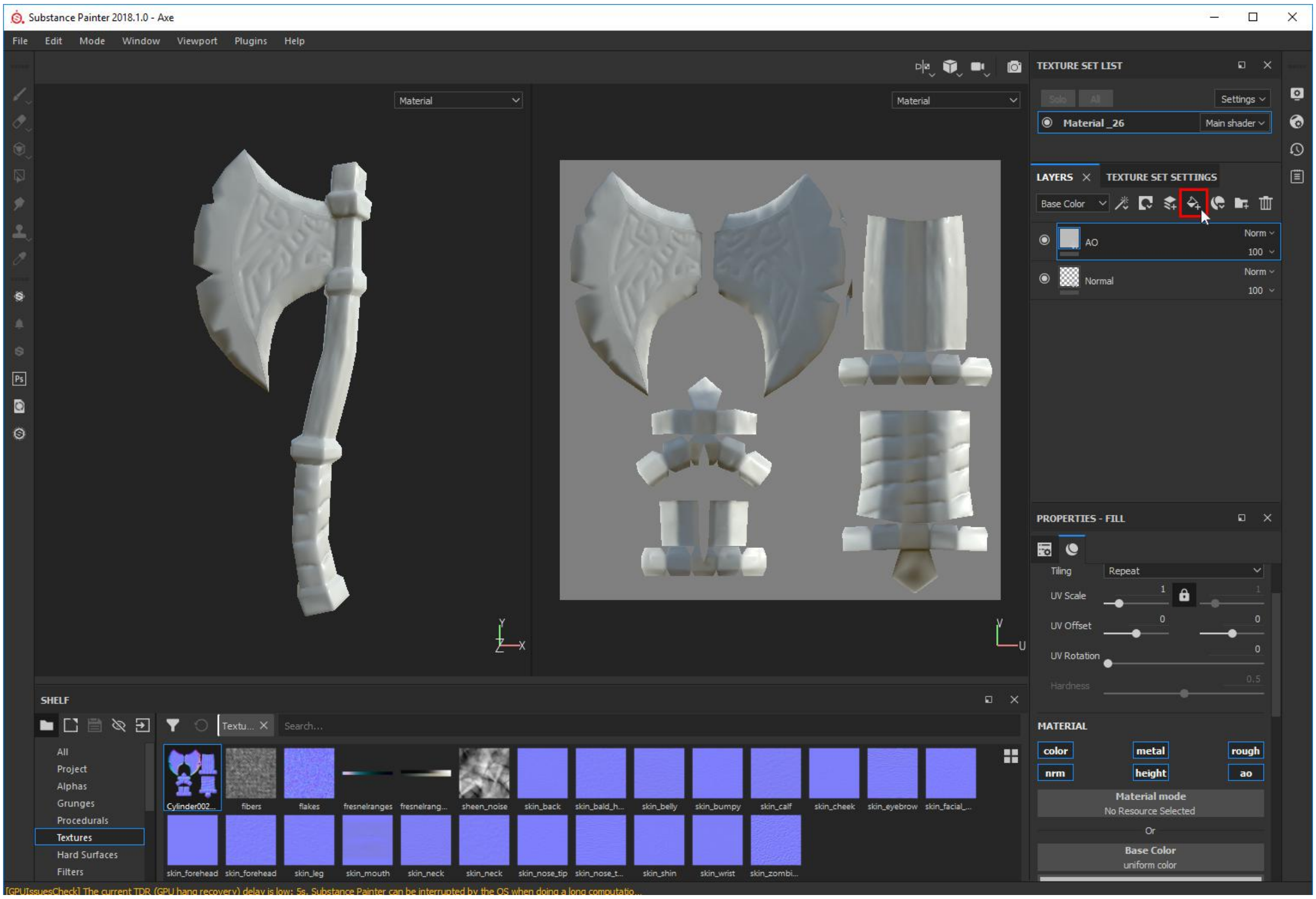
Click “+” and click Ambient occlusion



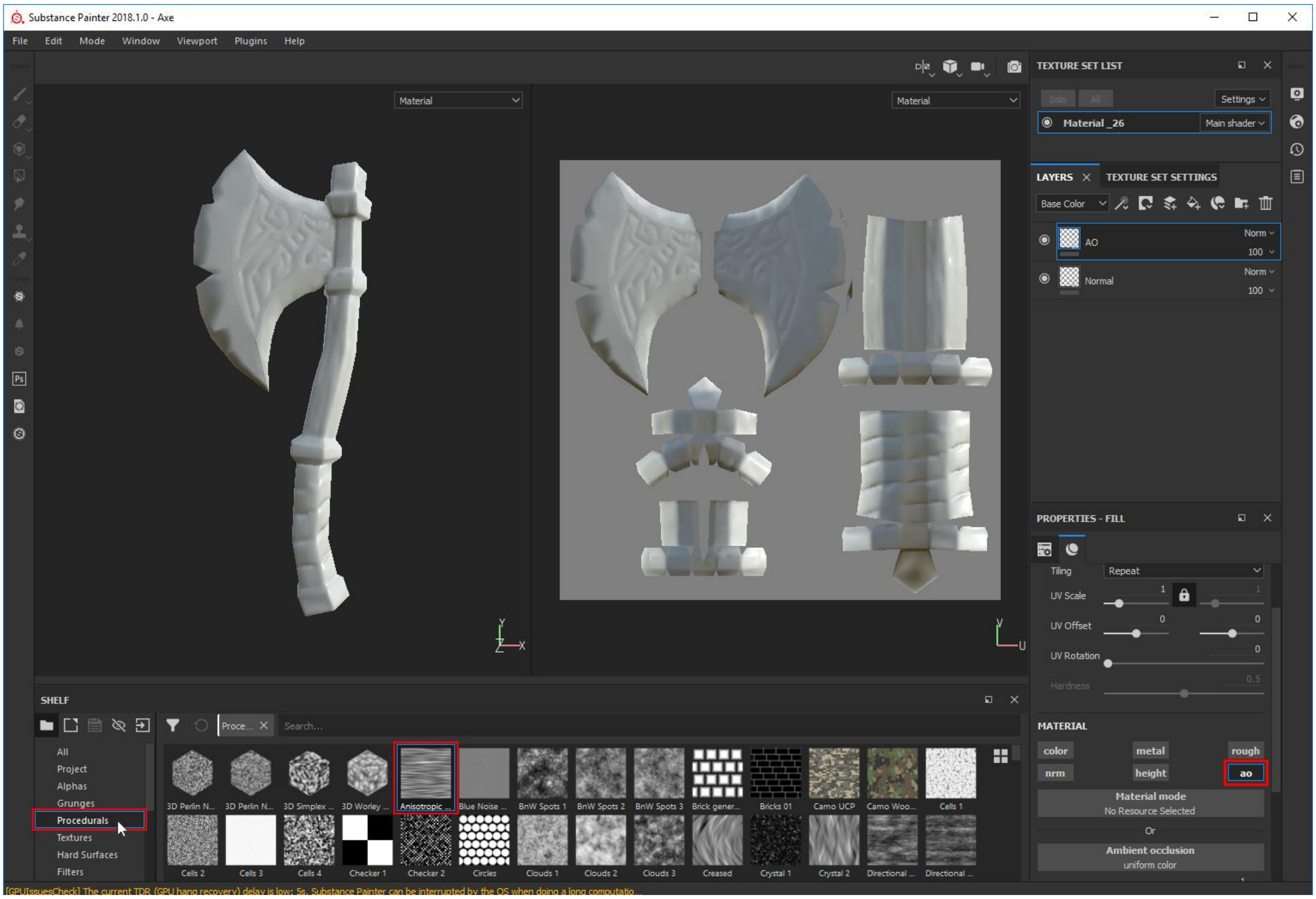
After you can see Ambient occlusion, you can click “Layers”



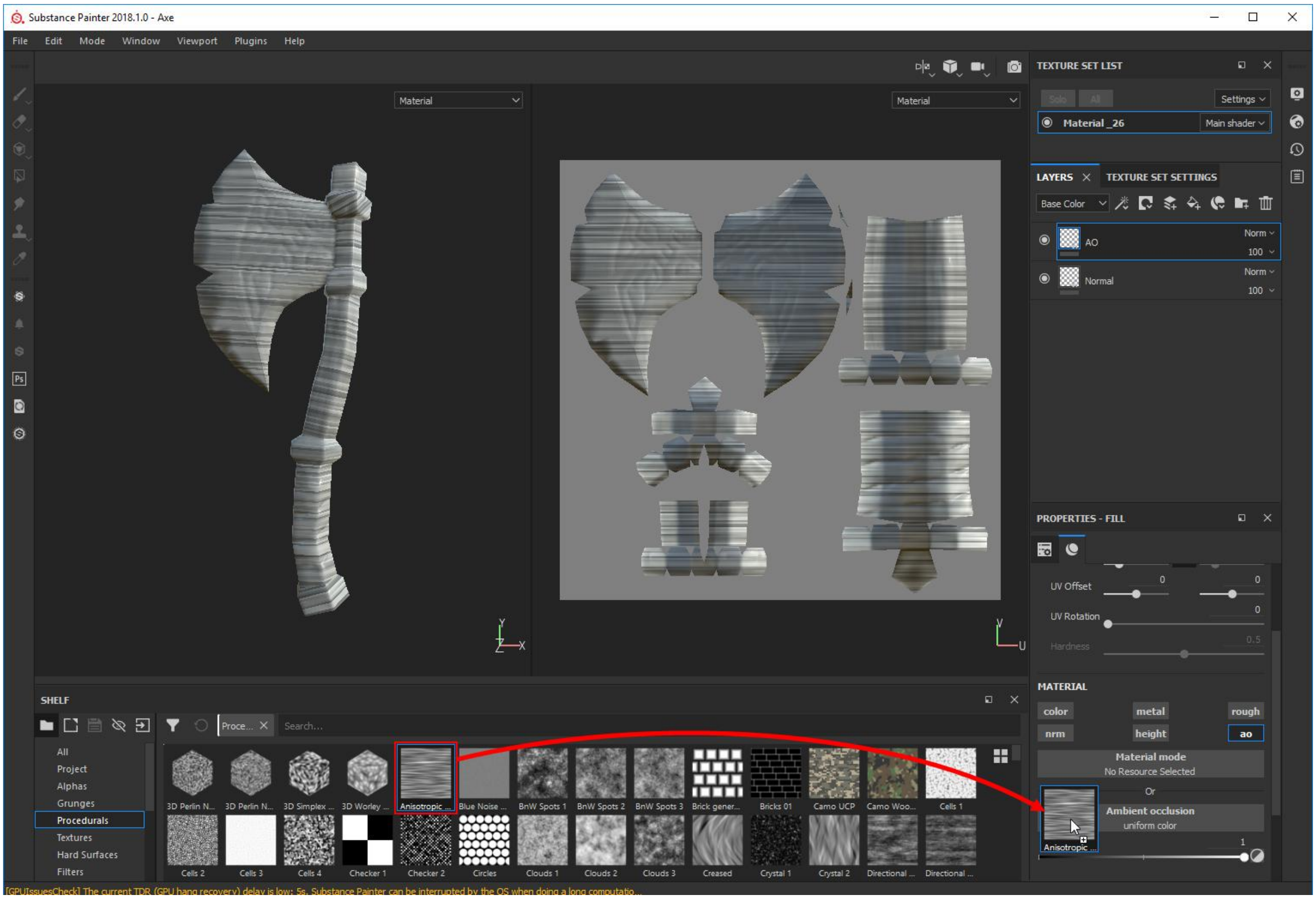
Click “Add Fill Layer” and name as AO (ambient occlusion)



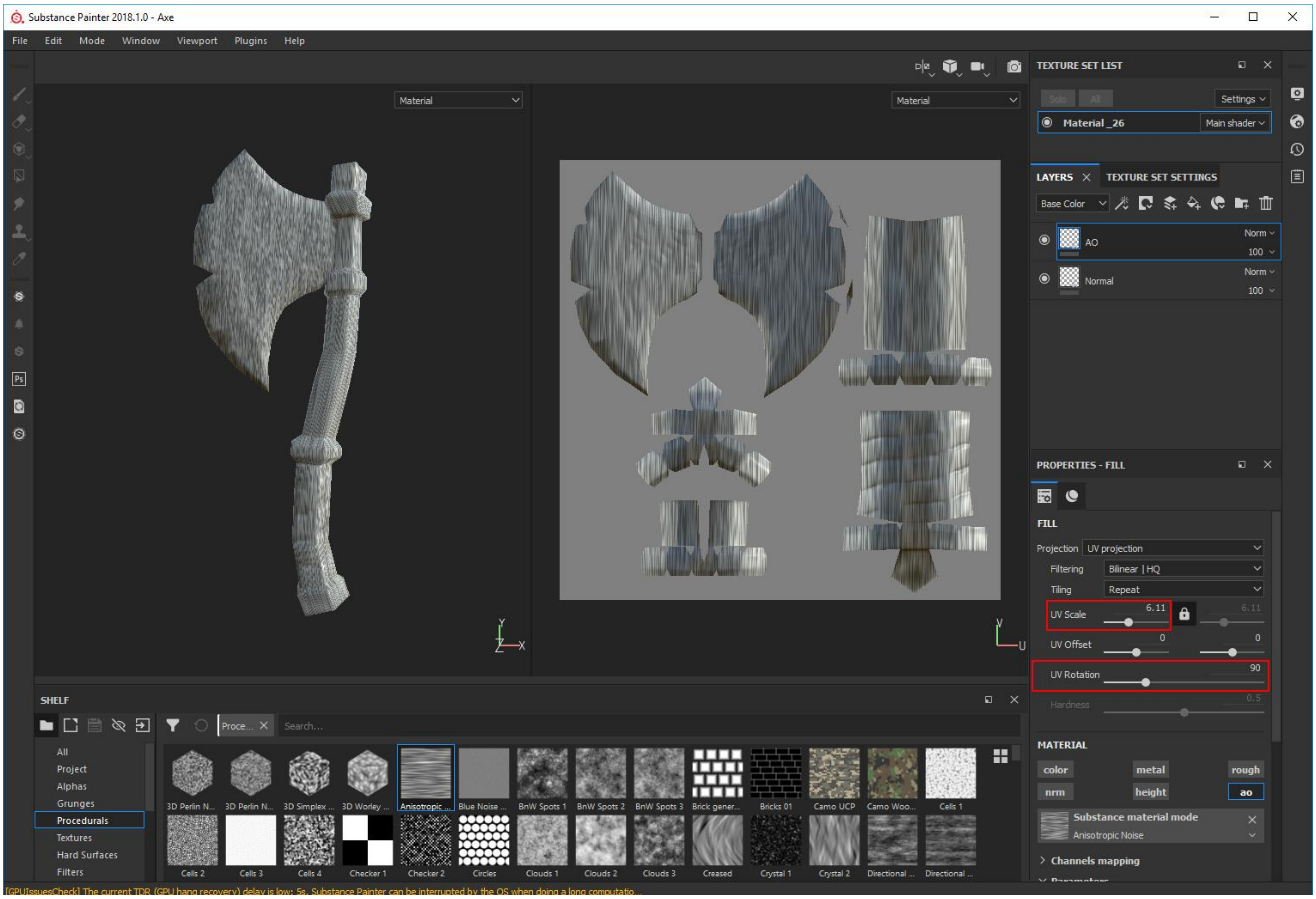
Disable all, except enable ao



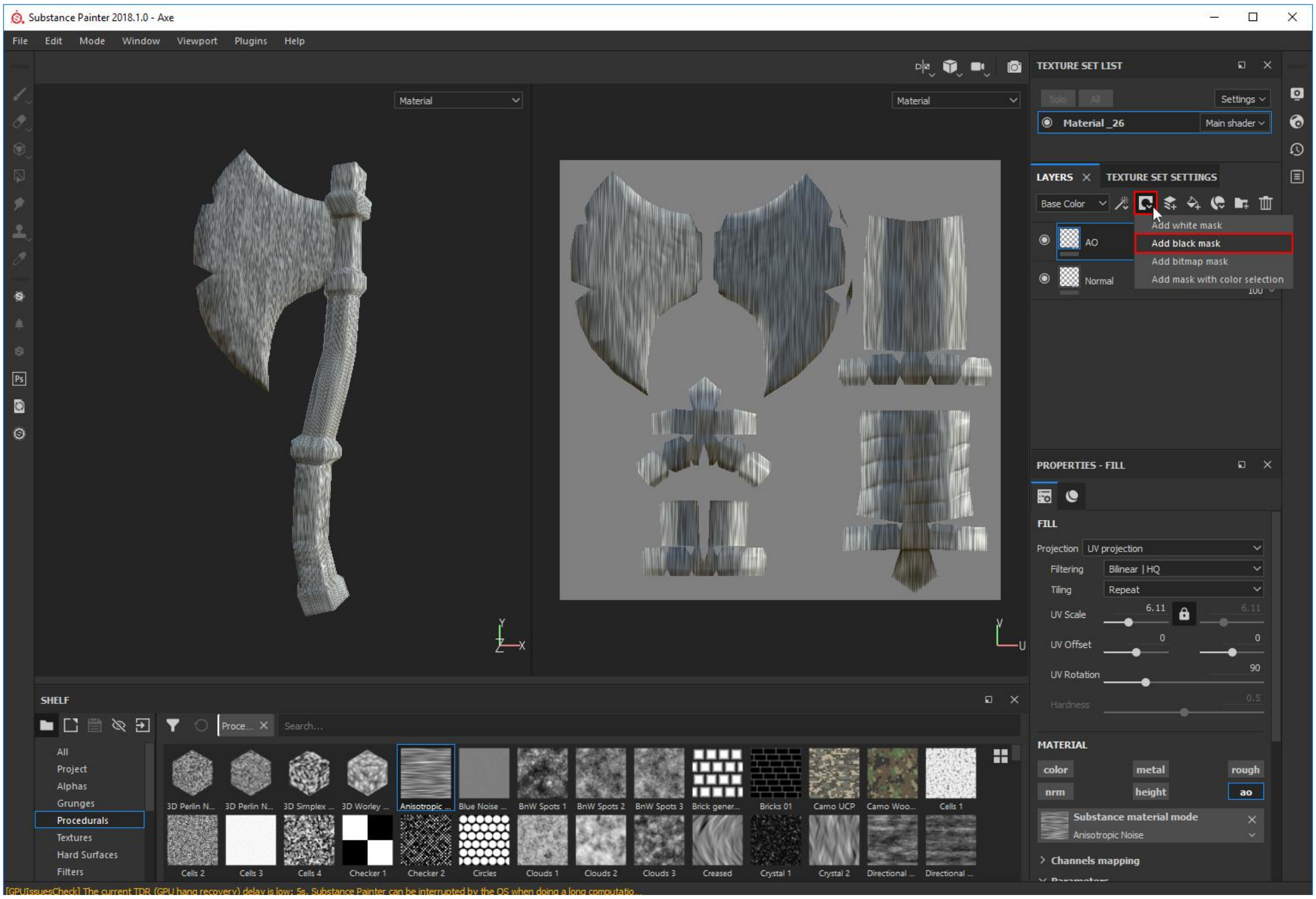
Procedurals → Anisotropic → Ambient occlusion (for metal part)



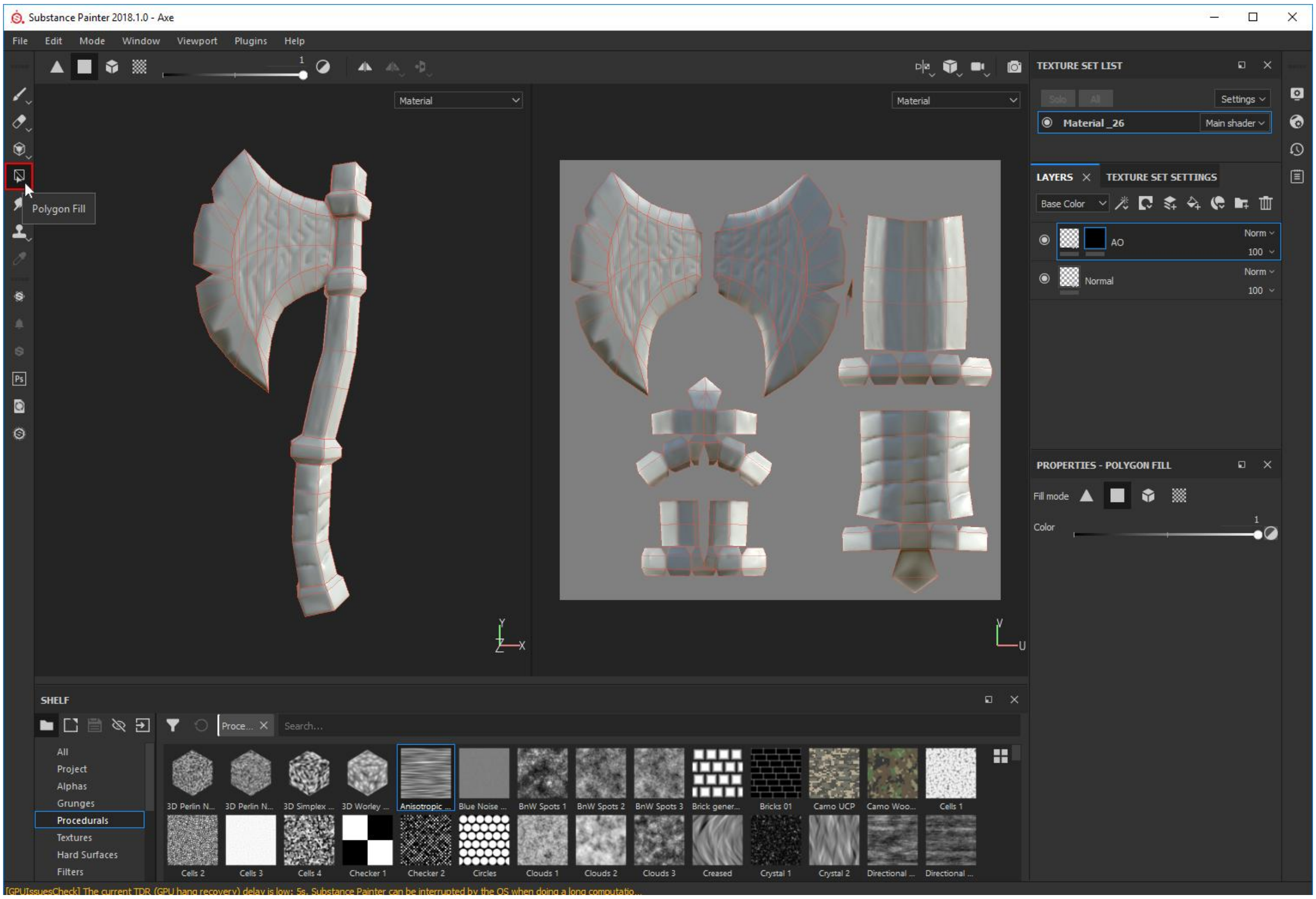
Adjust UV Scale and UV Rotation



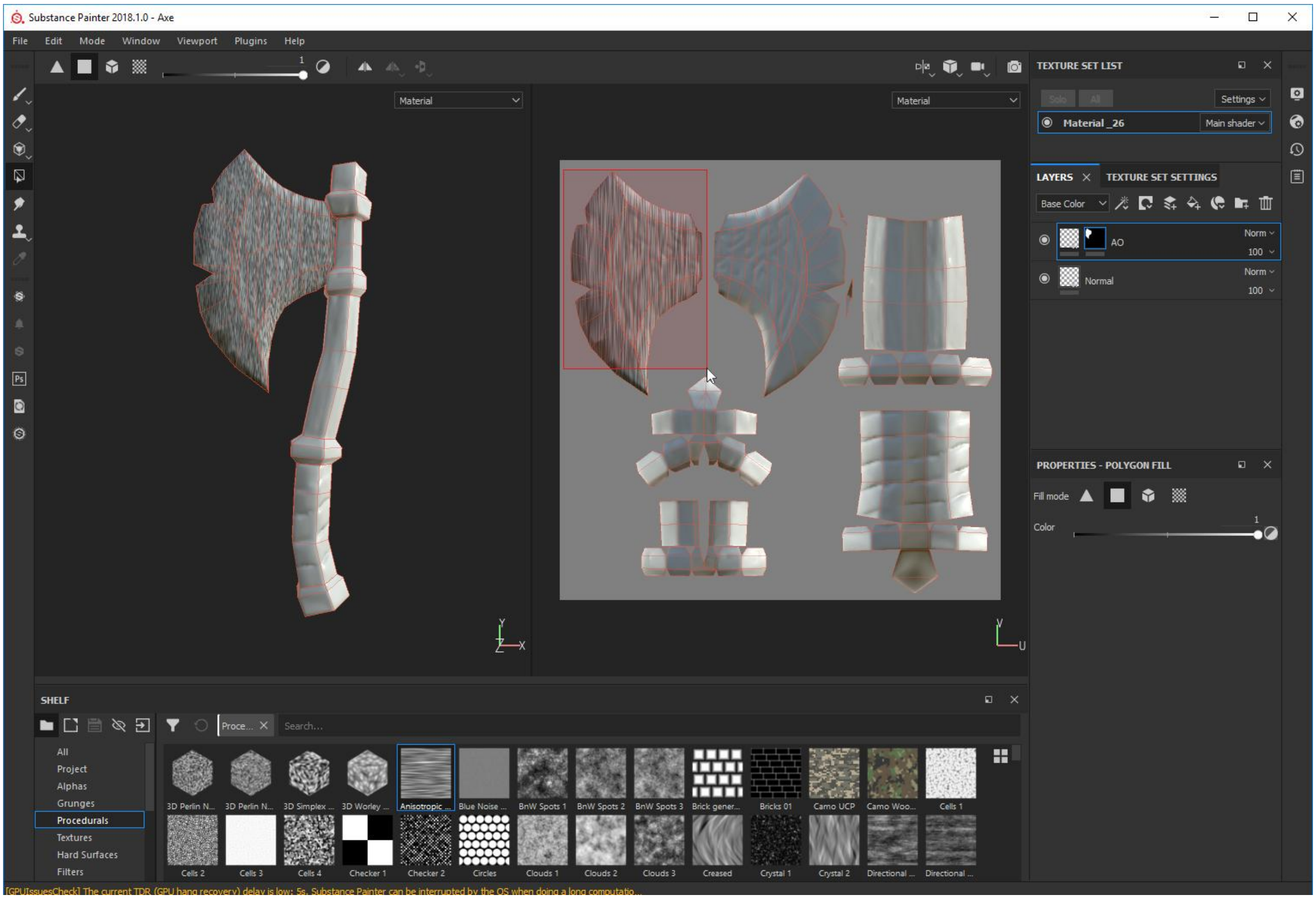
Add black mask



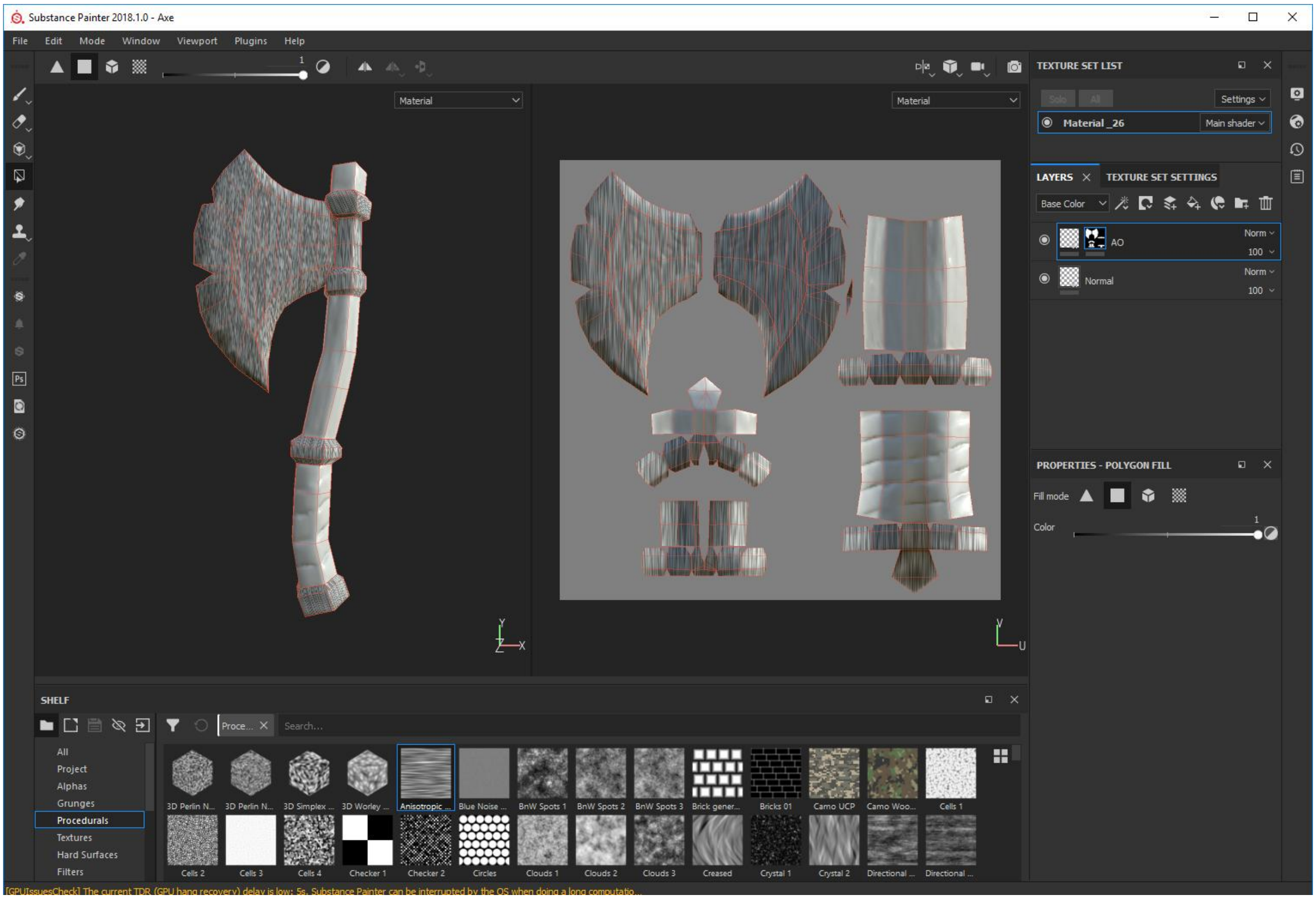
Select “Polygon Fill”



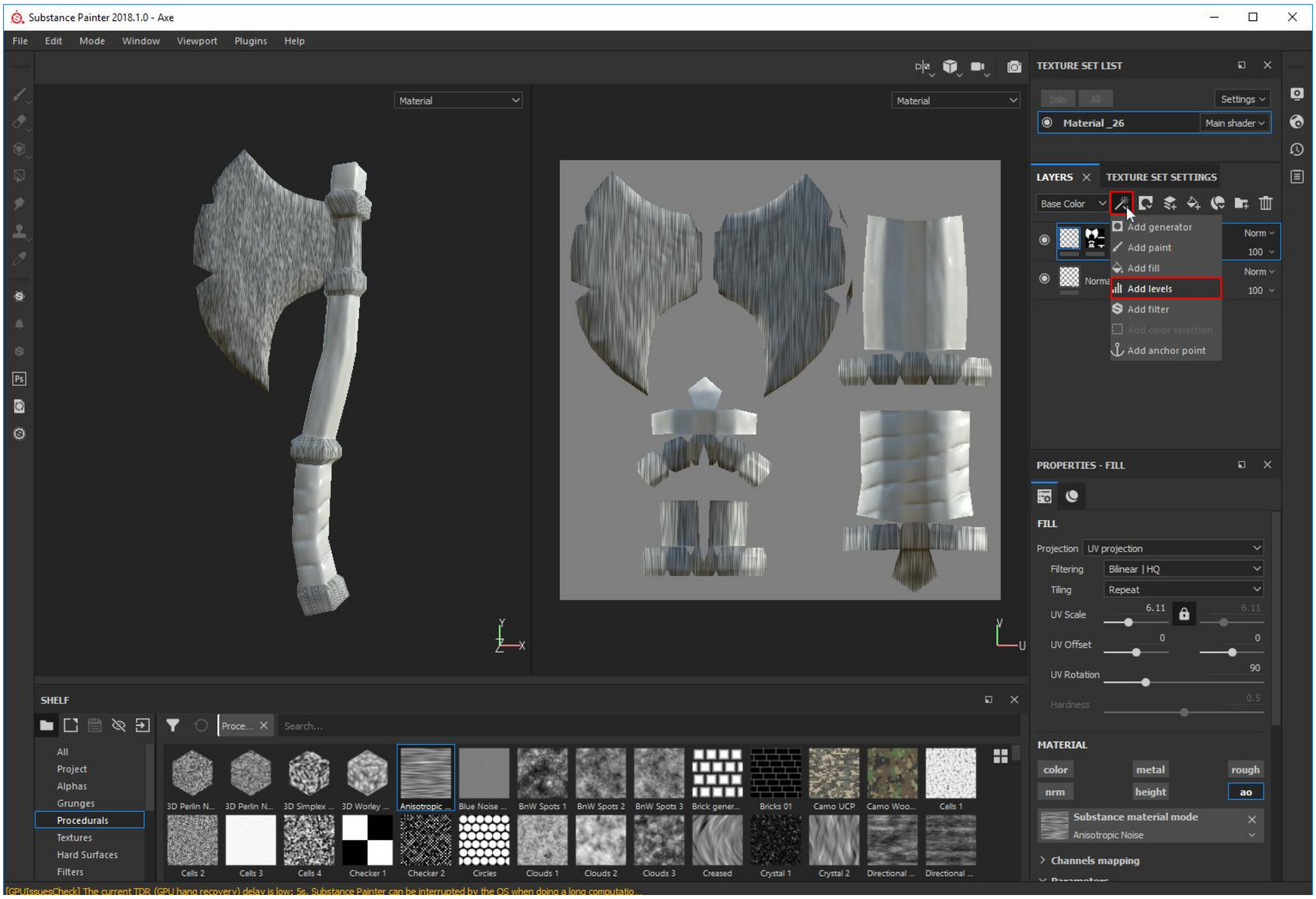
Highligh the area you want



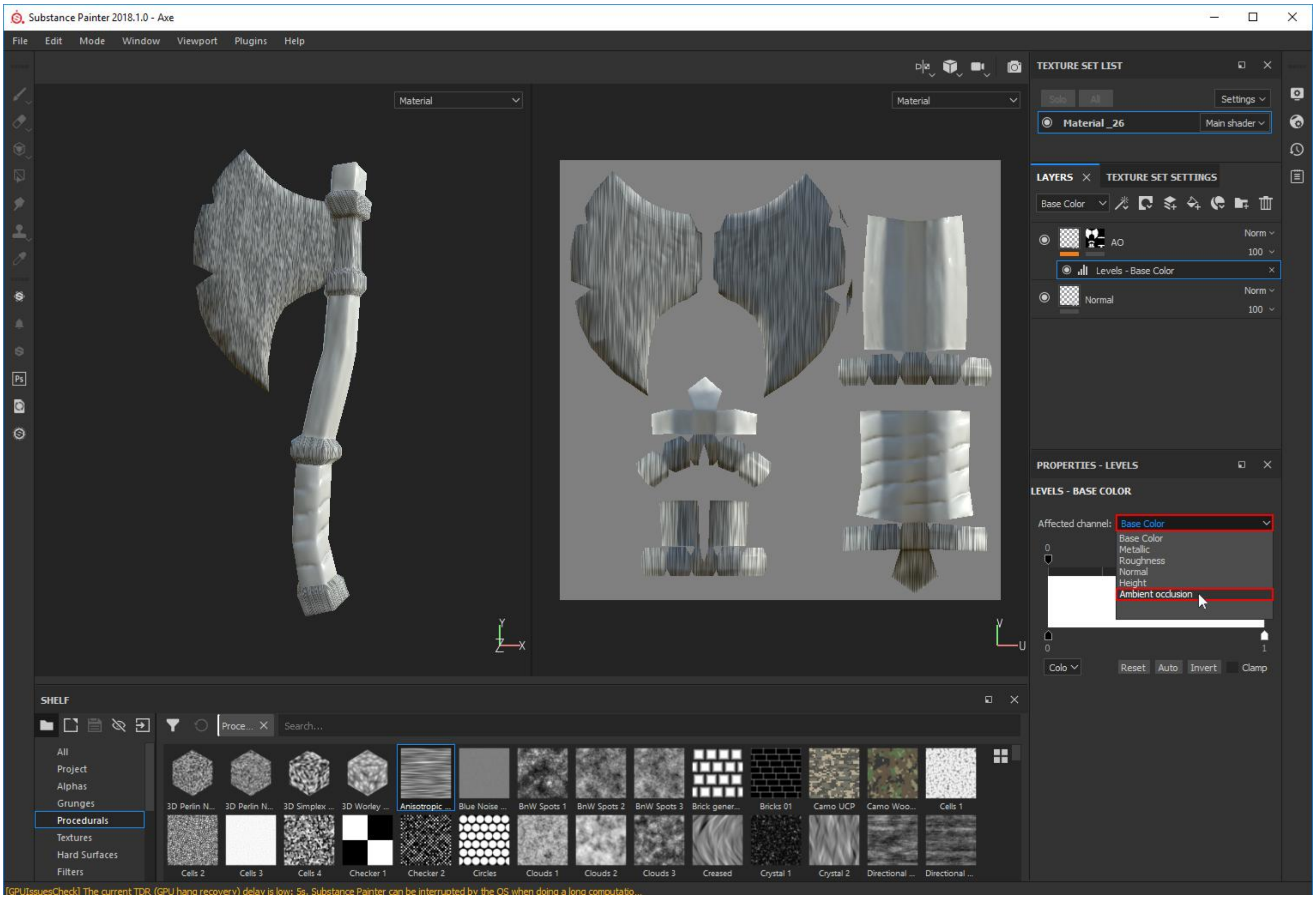
After finish polygon fill on all metal part



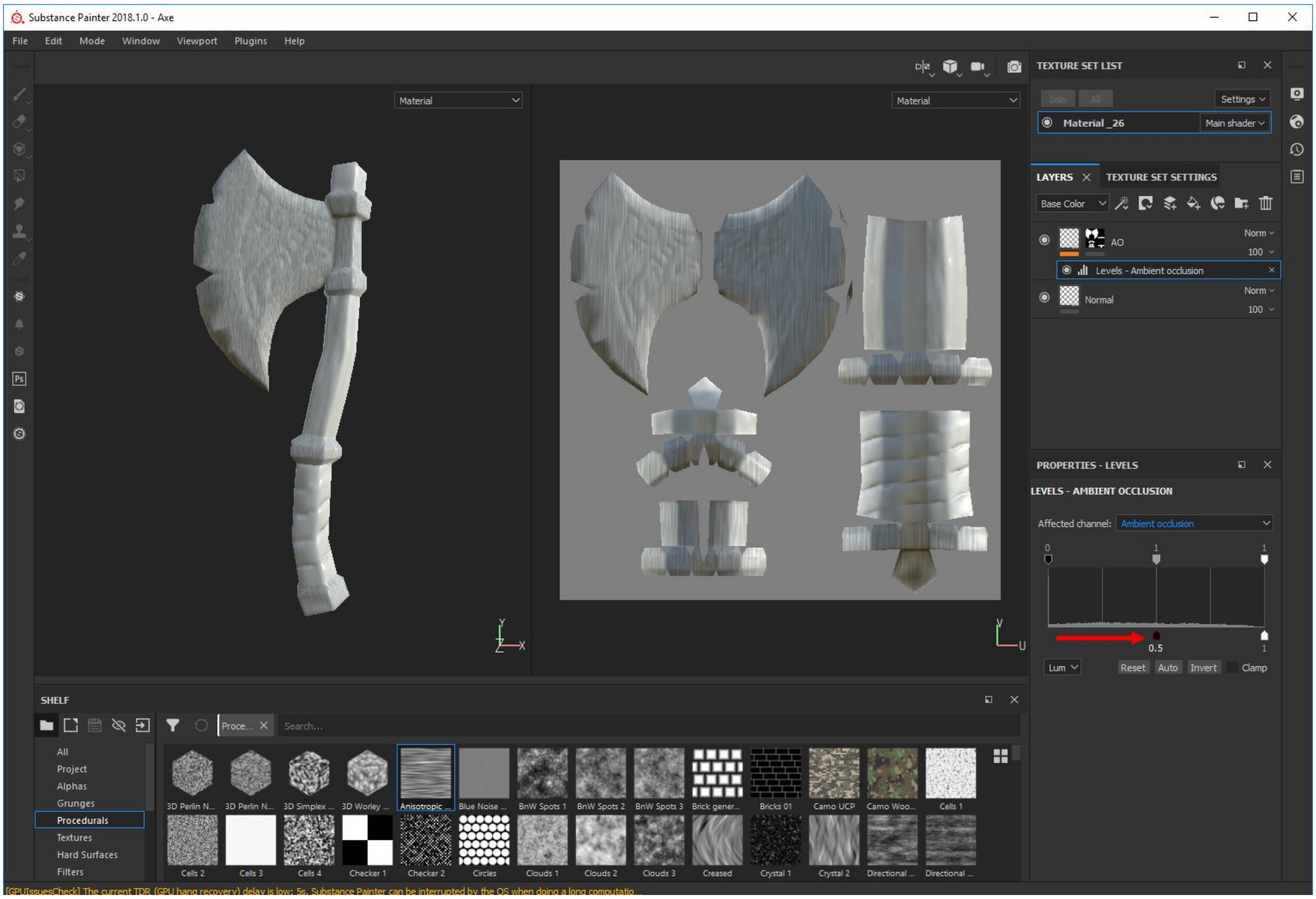
Click “Add levels”



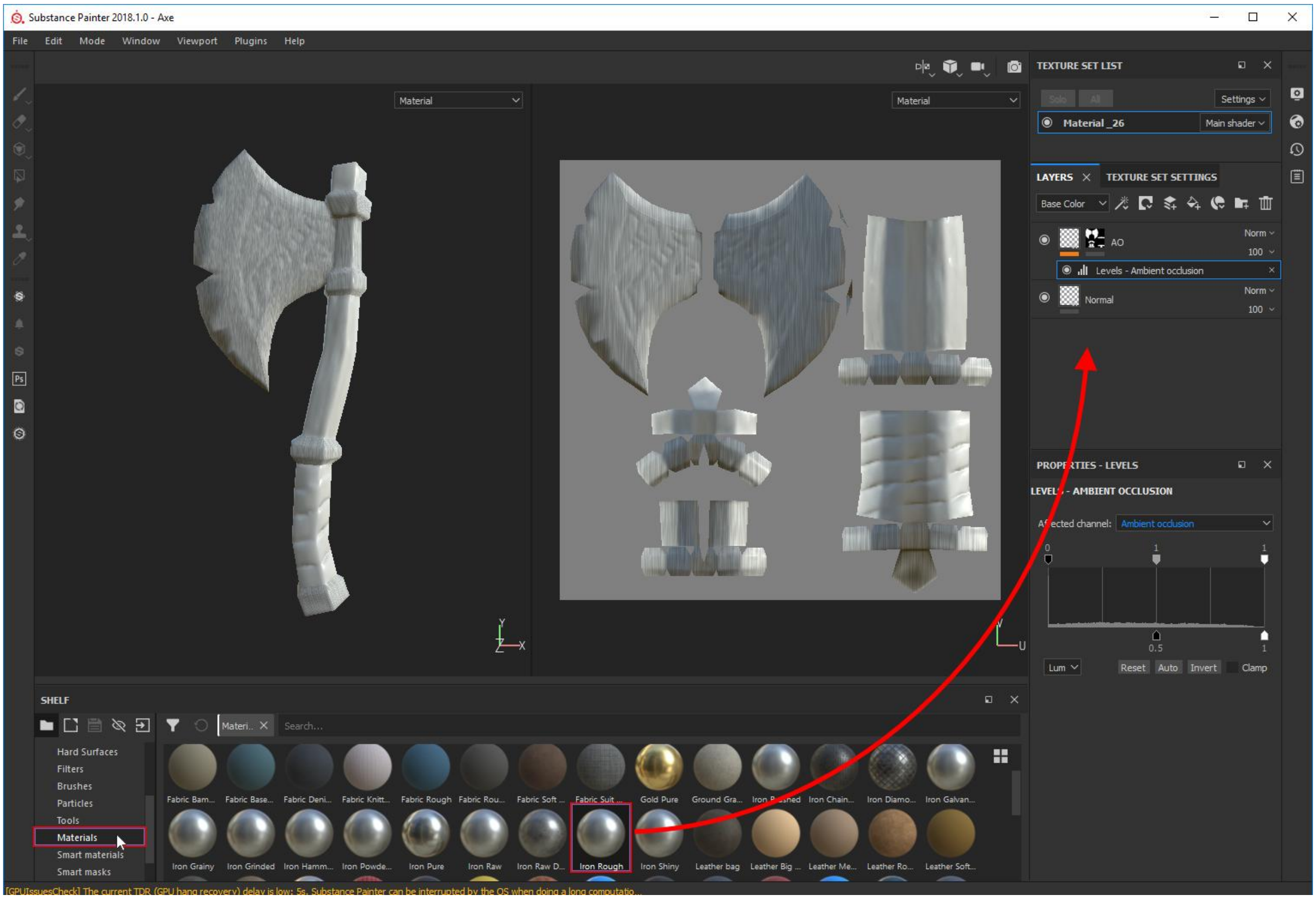
Affected channel: Ambient occlusion



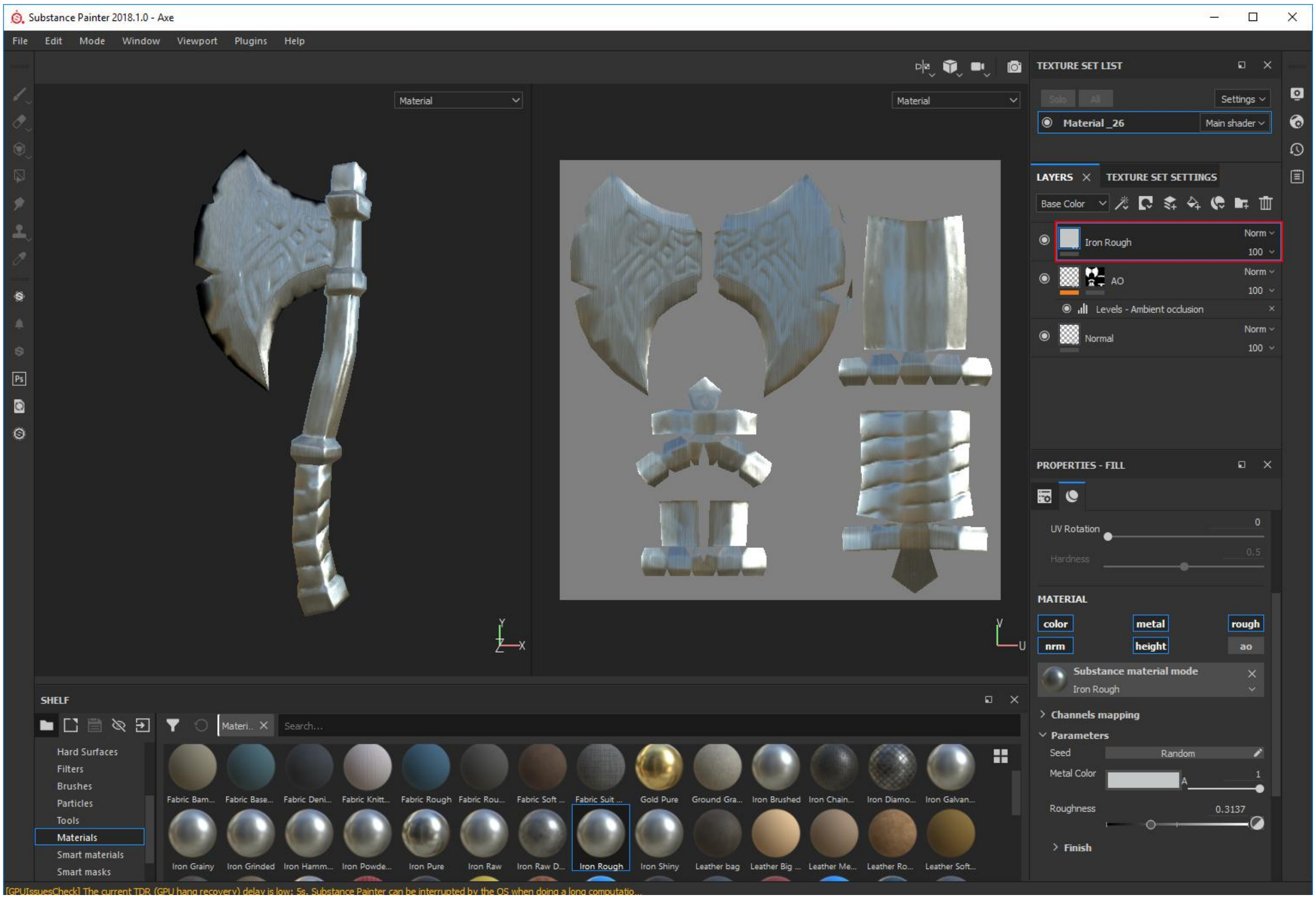
Adjust to 0.5 (more brighter)



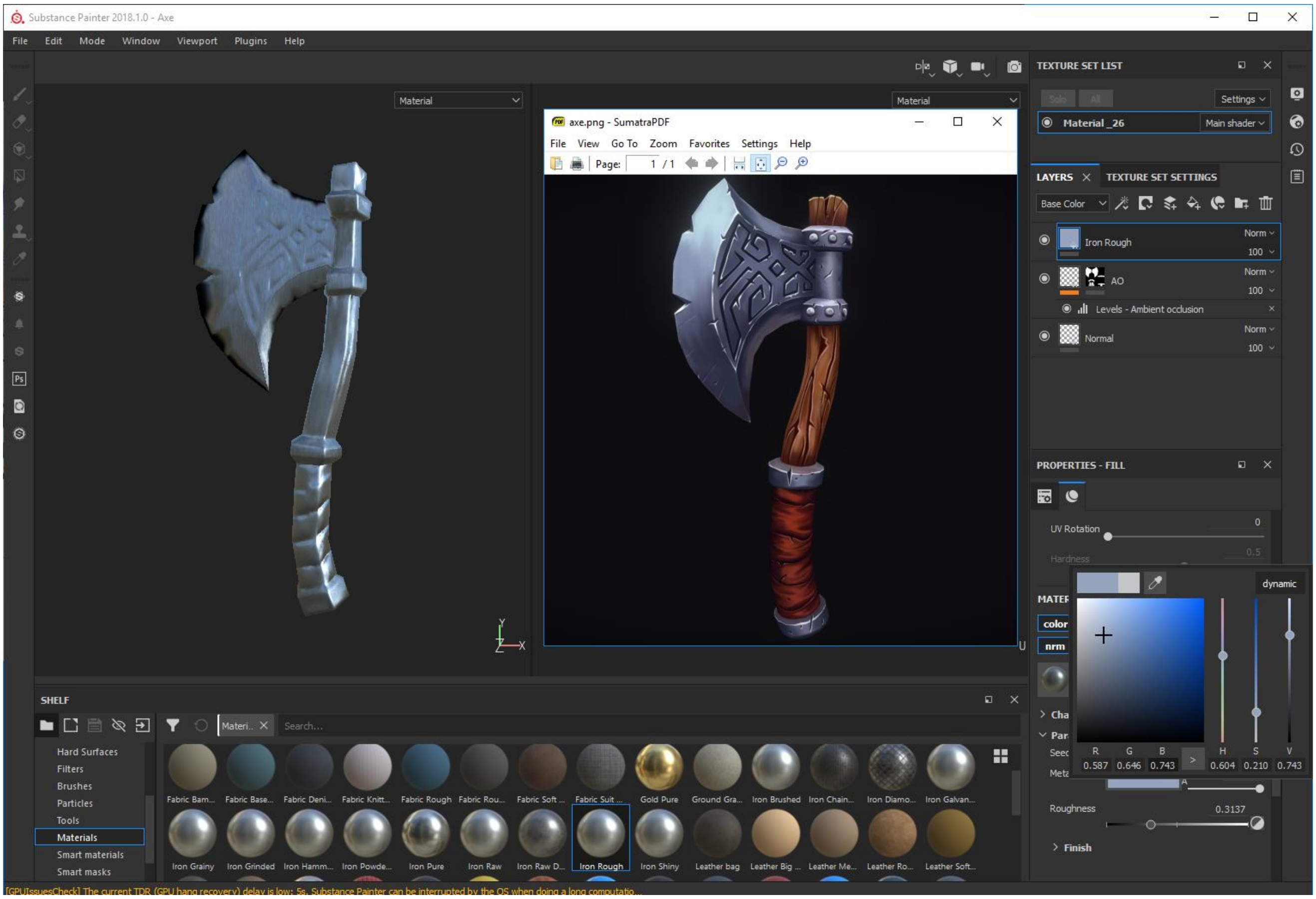
Add Iron Rough material to Layers



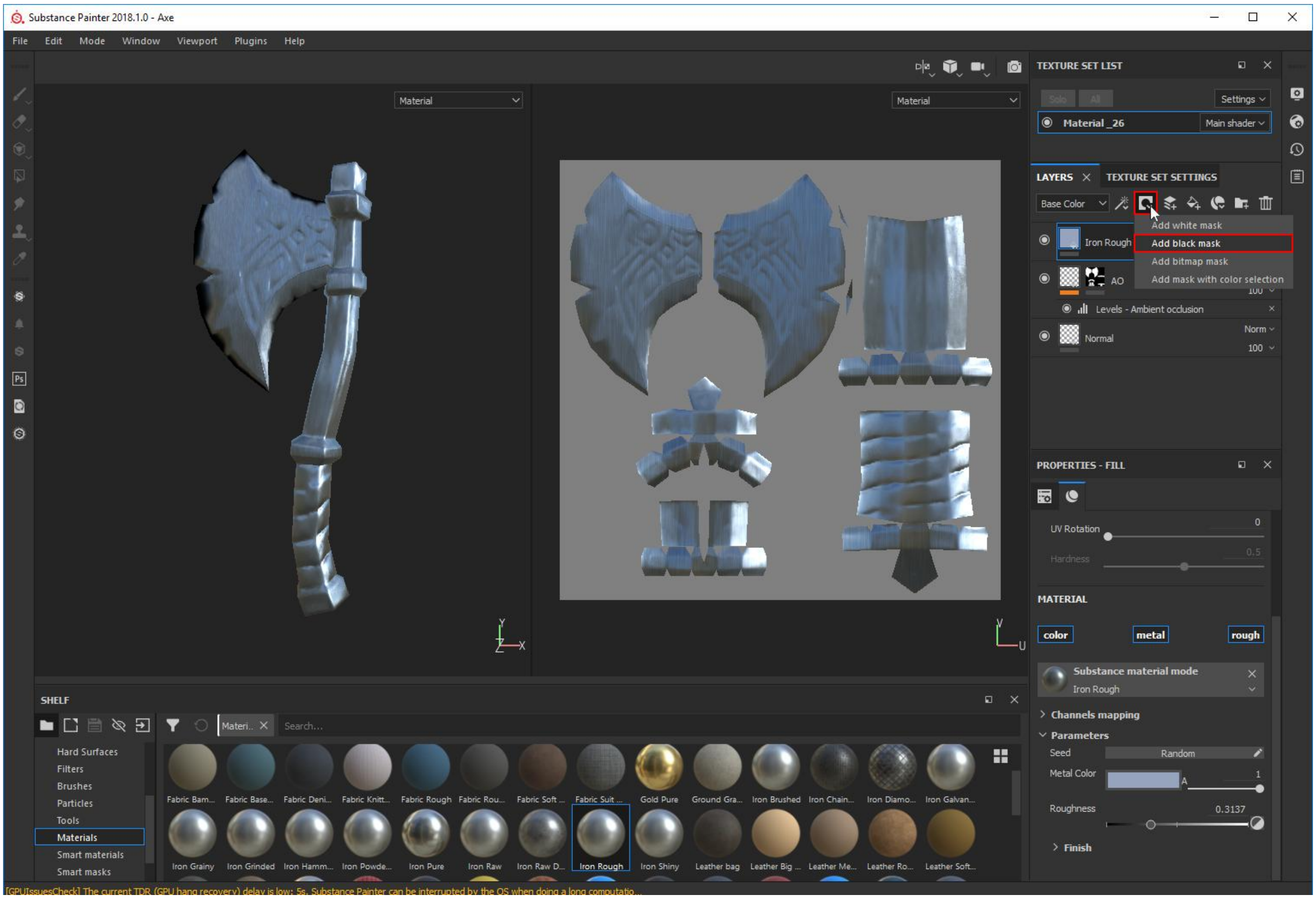
After add Iron Rough material



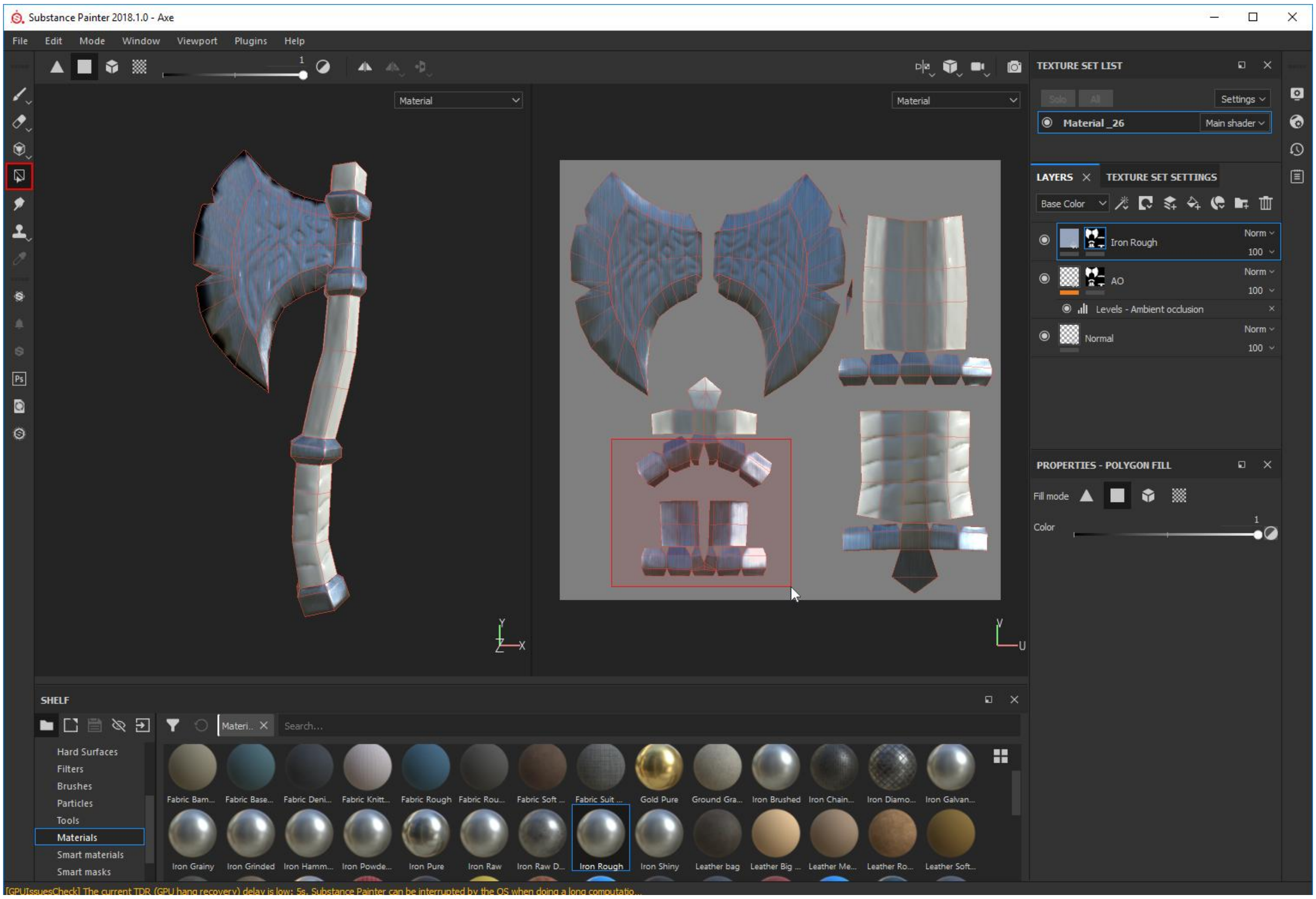
Open reference picture, and adjust the iron base color



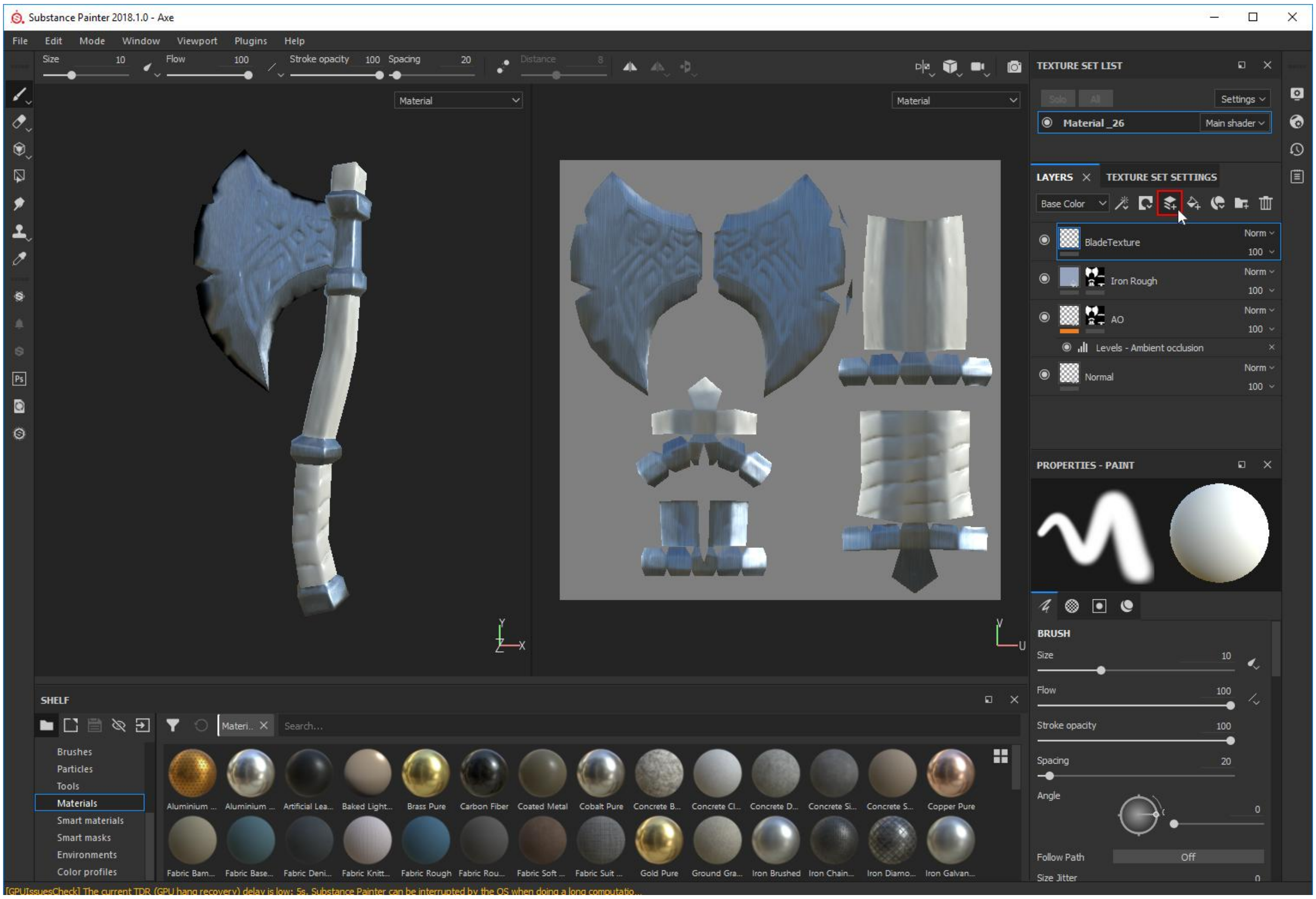
Add black mask



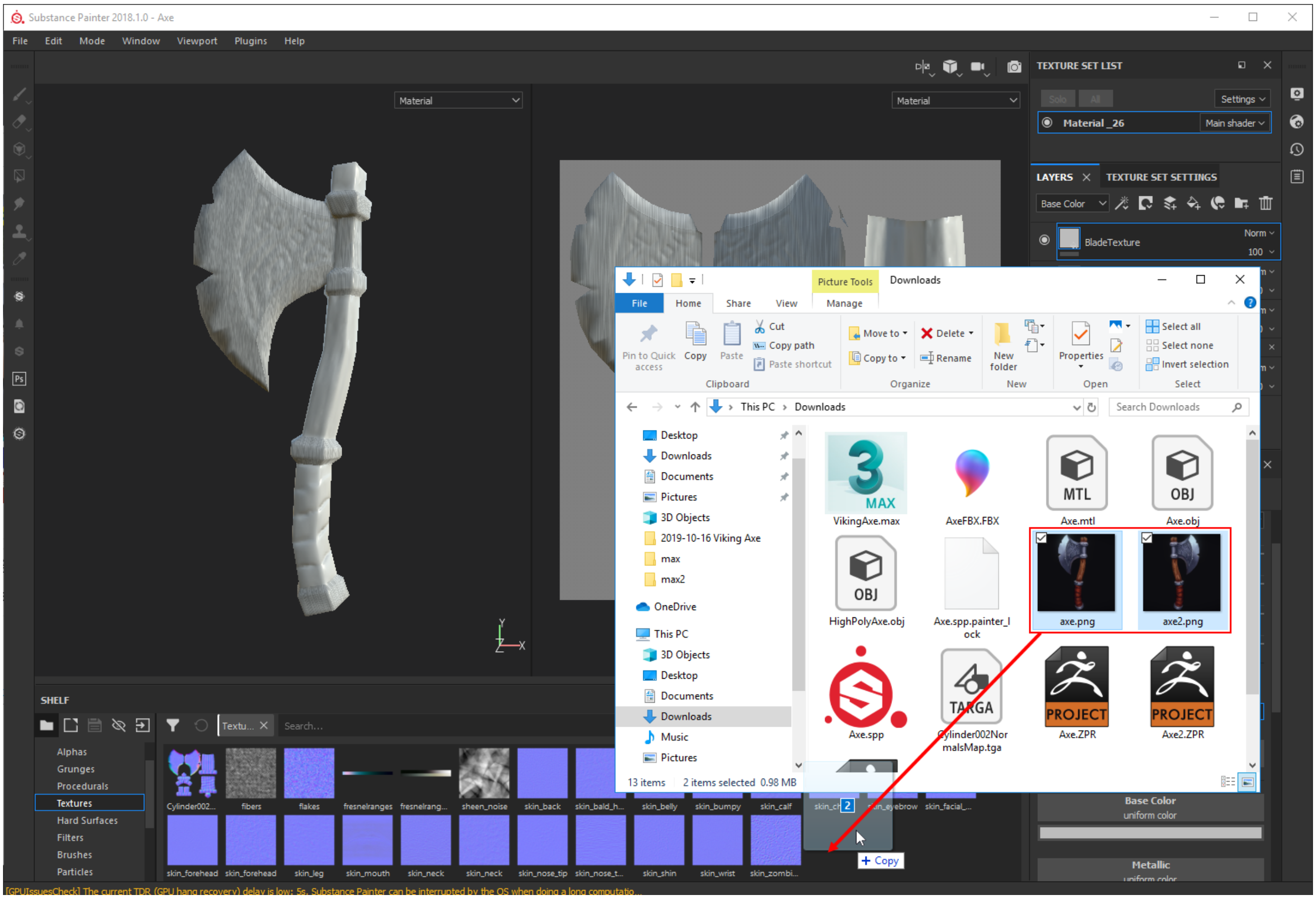
Use "Polygon Fill" and highlight for metal part



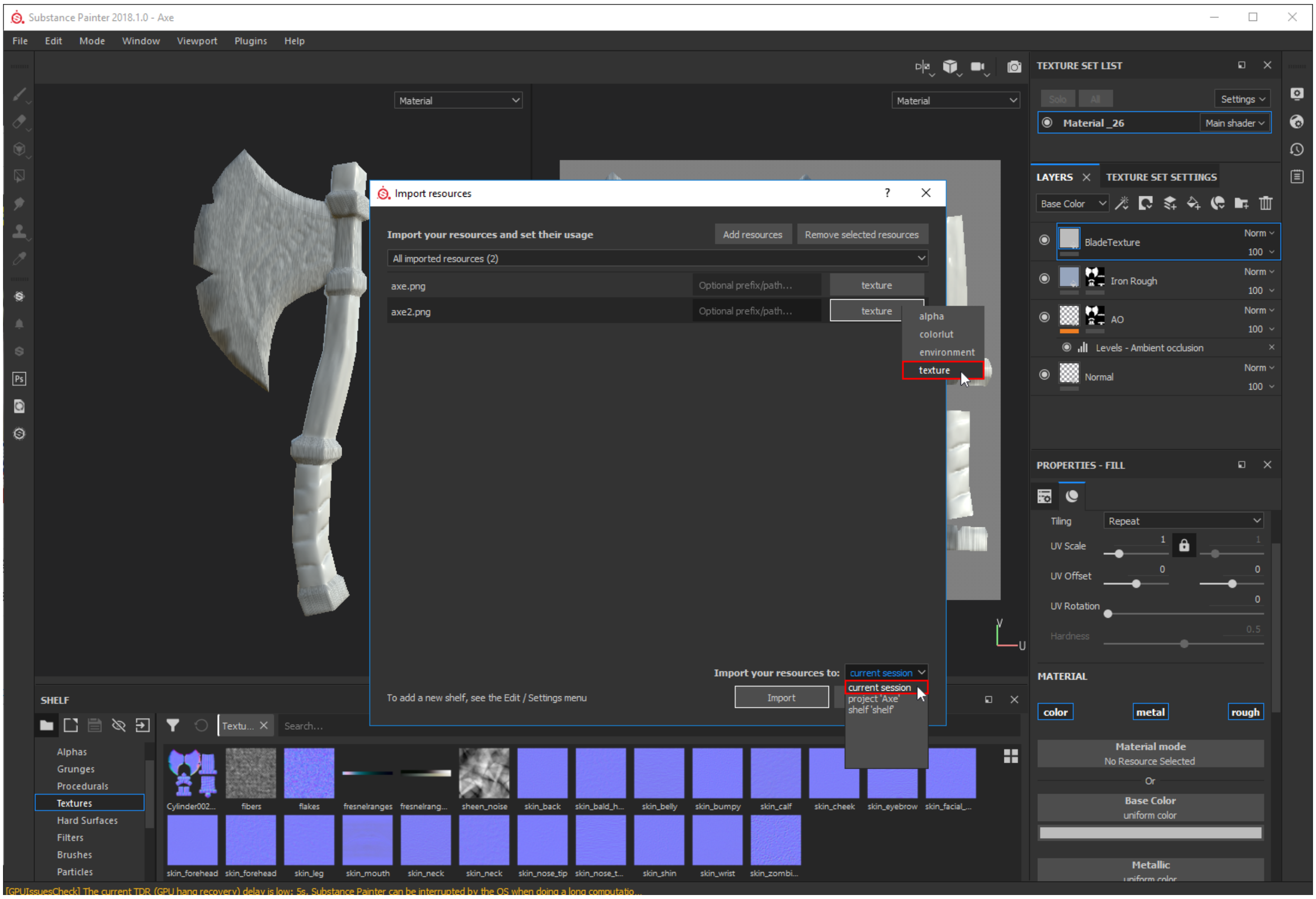
Click "Add Layer" and name as BladeTexture



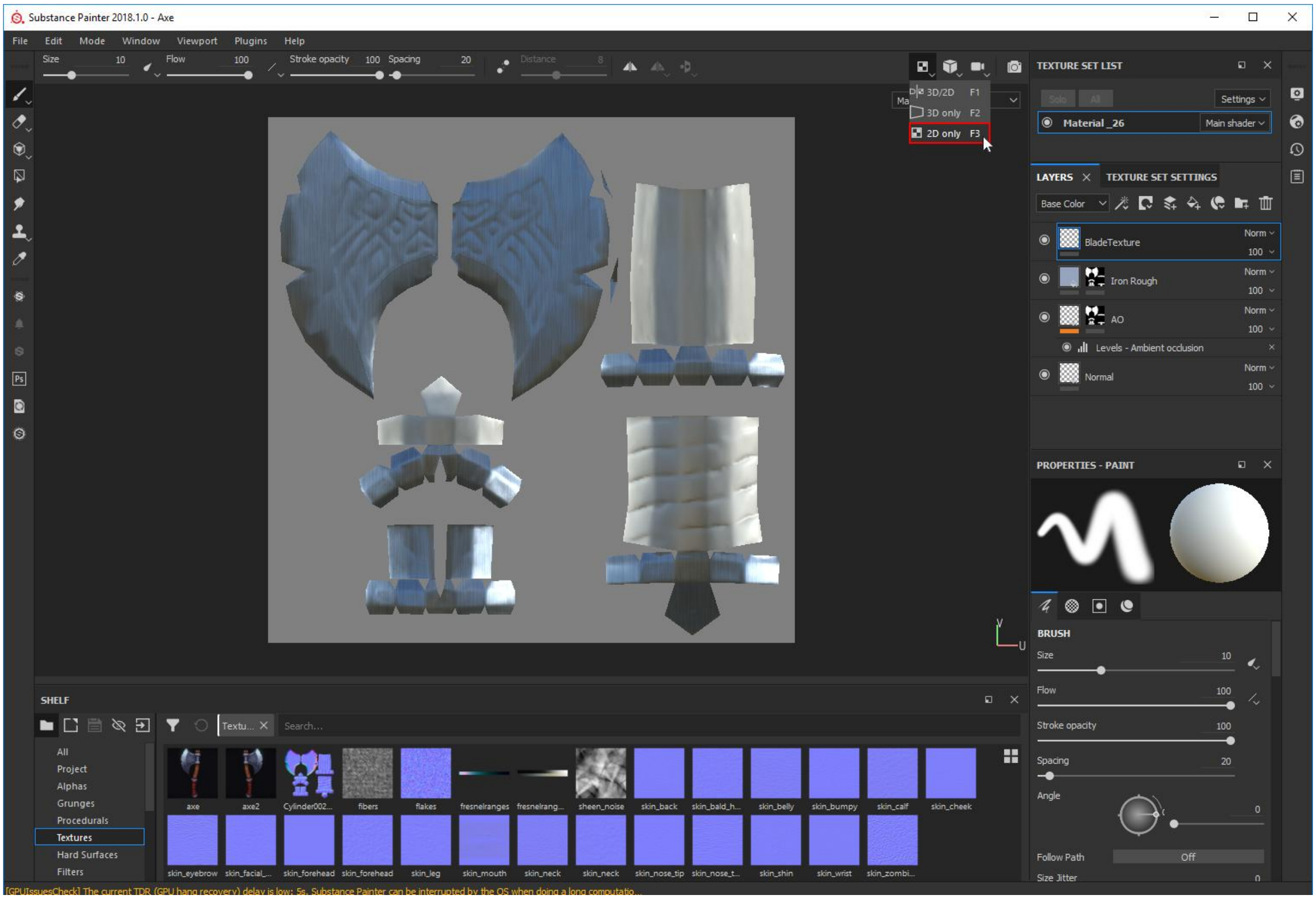
Drag axe picture into textures



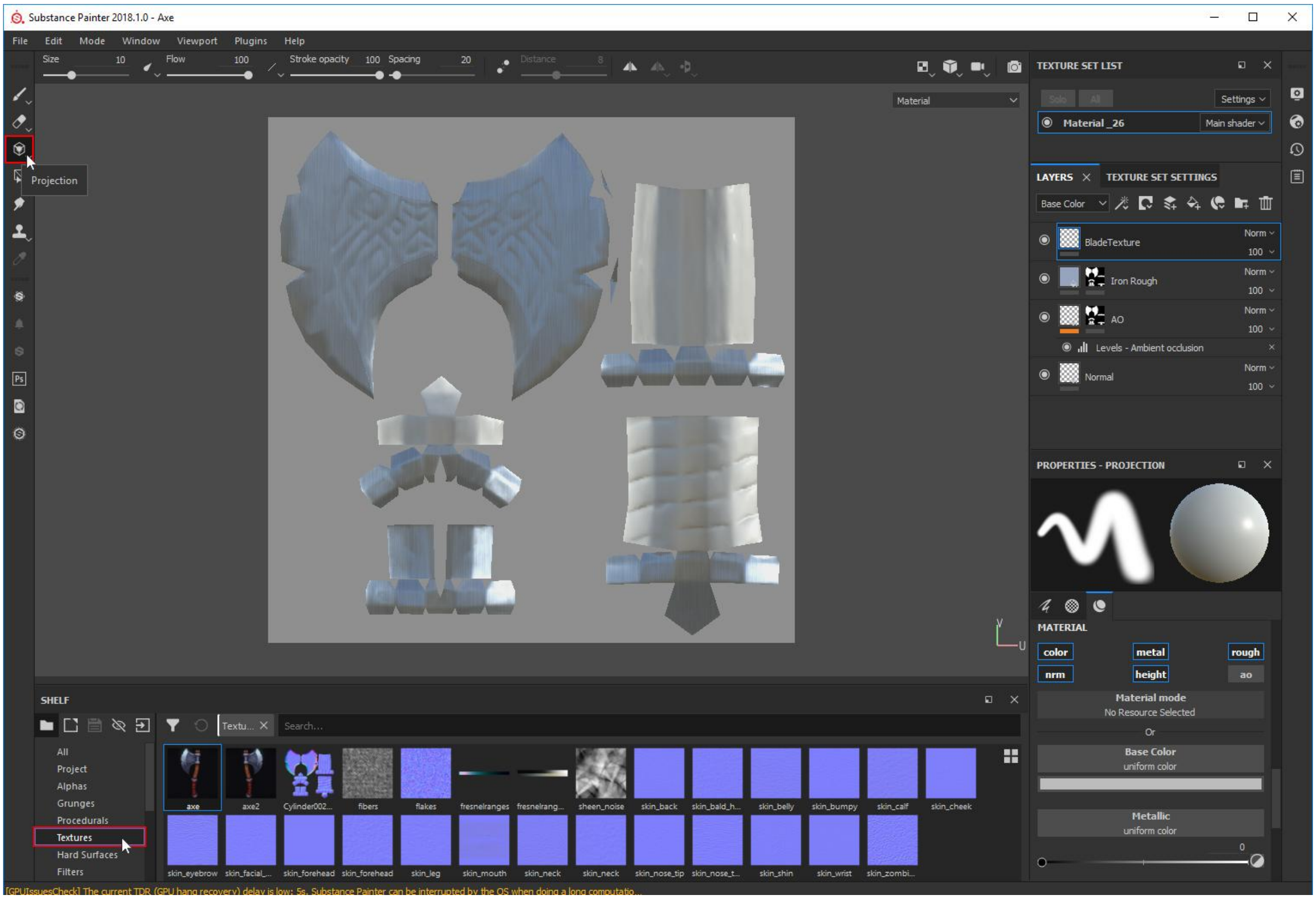
Choose texture and current session



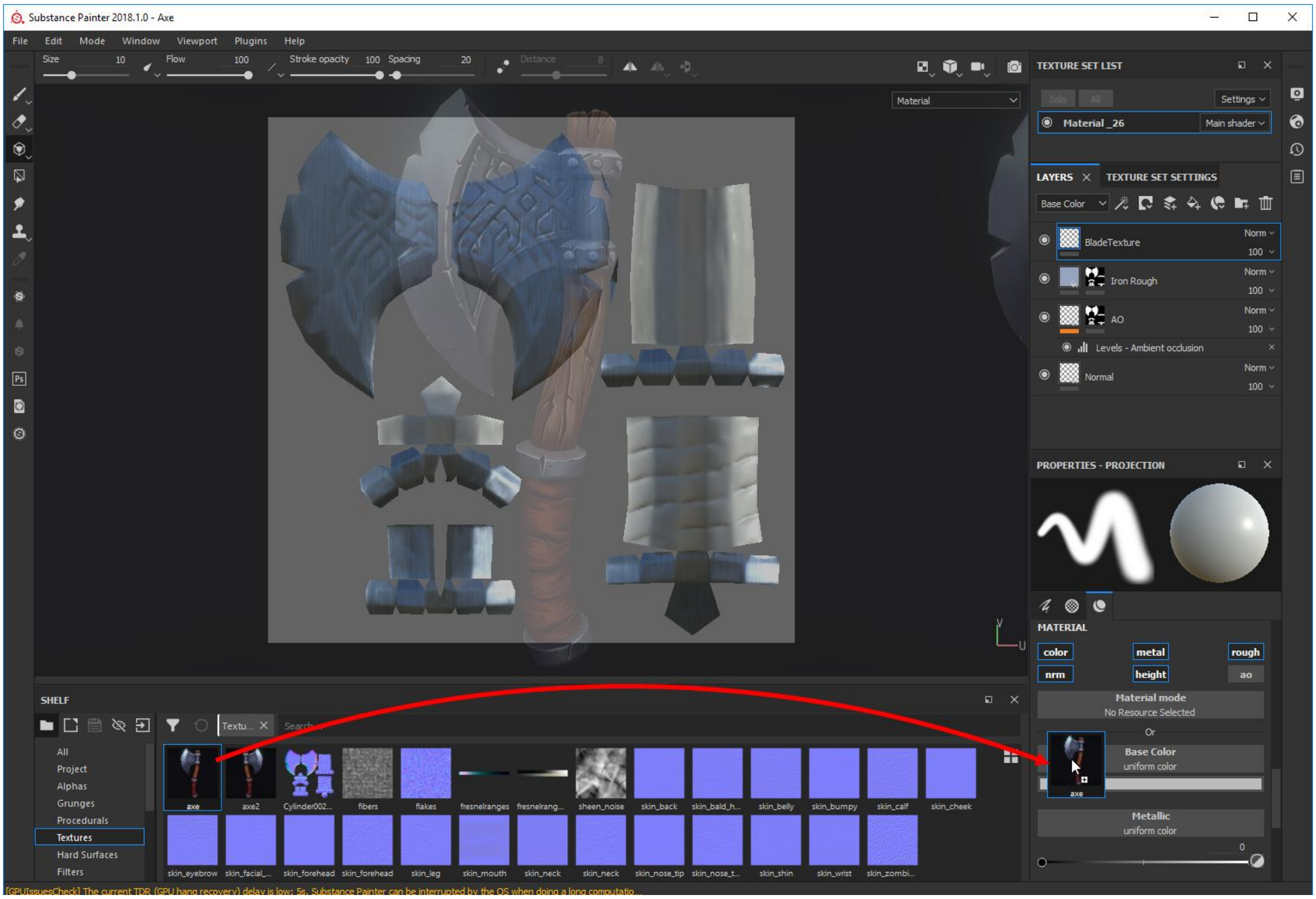
Switch to 2D only



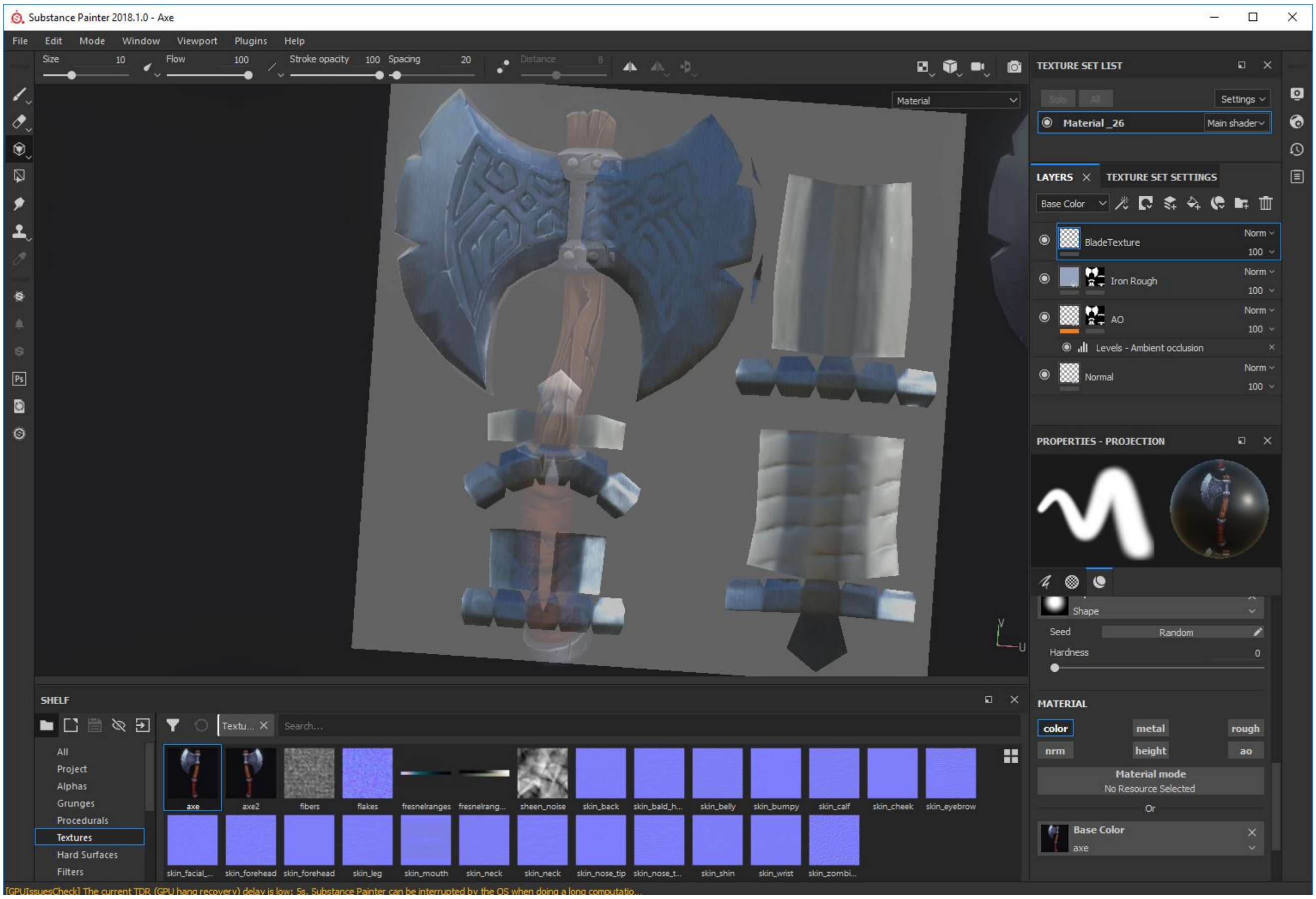
Click "Projection"



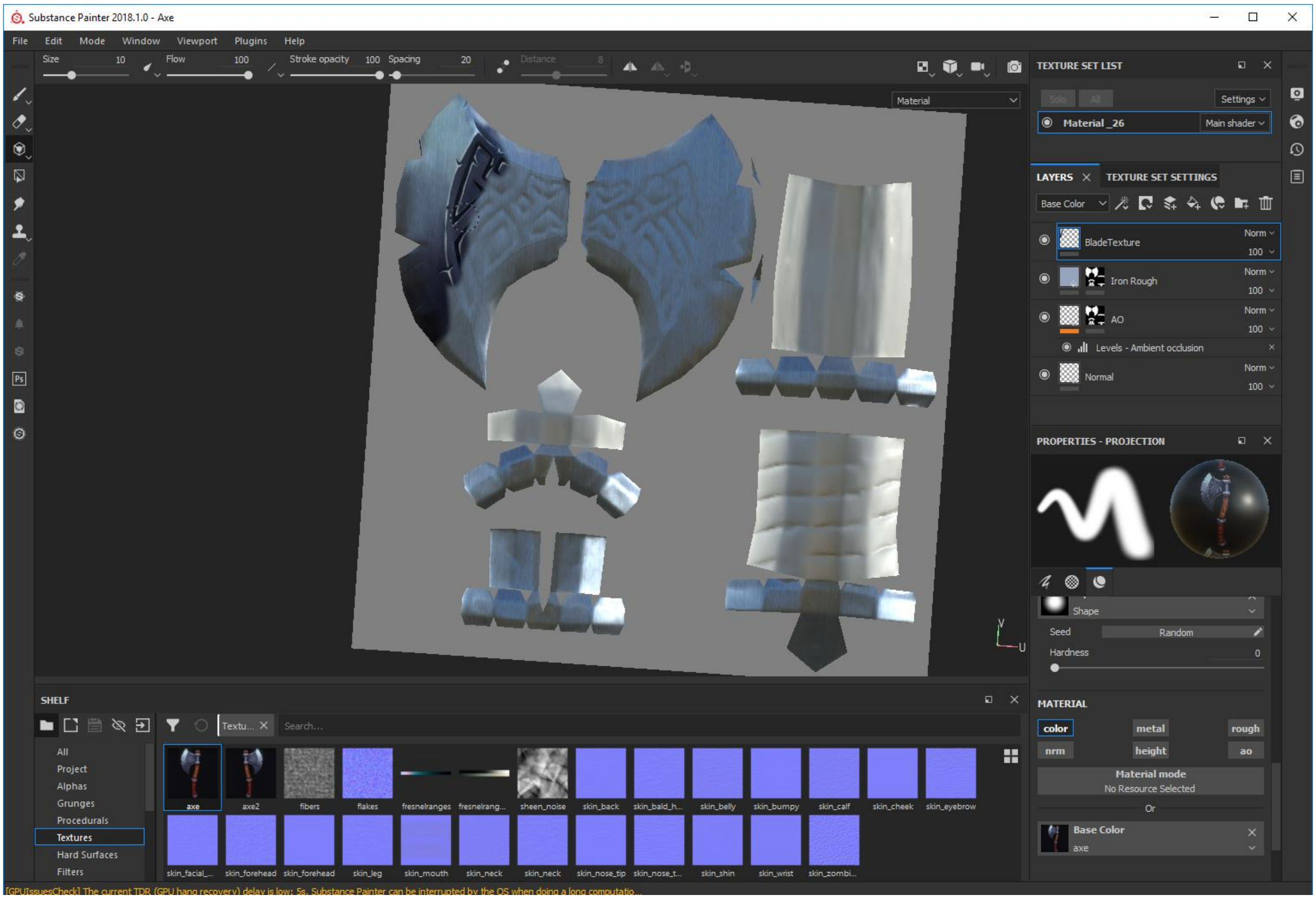
Drag the picture to Base Color



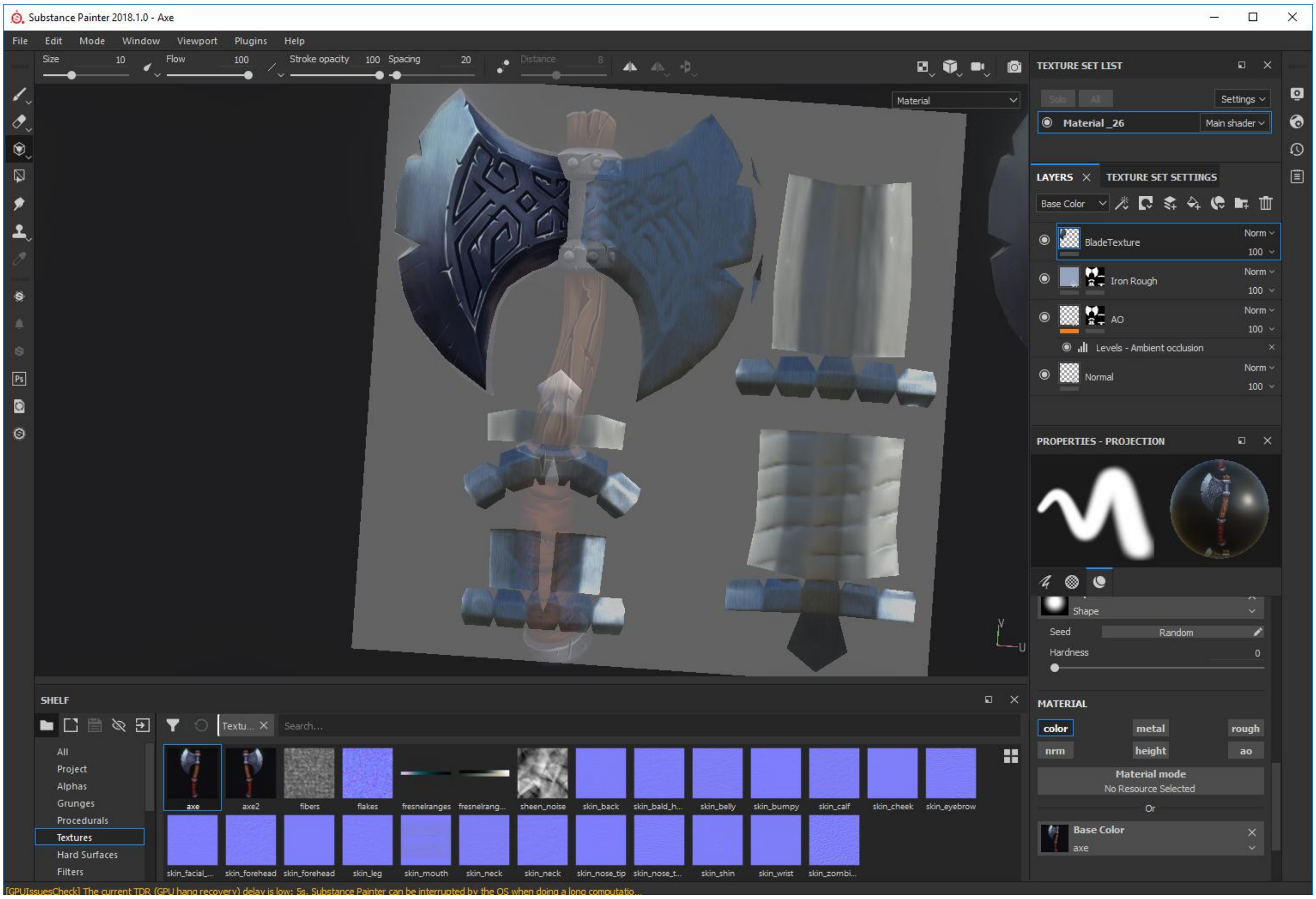
Adjust and rotate the UV before draw it



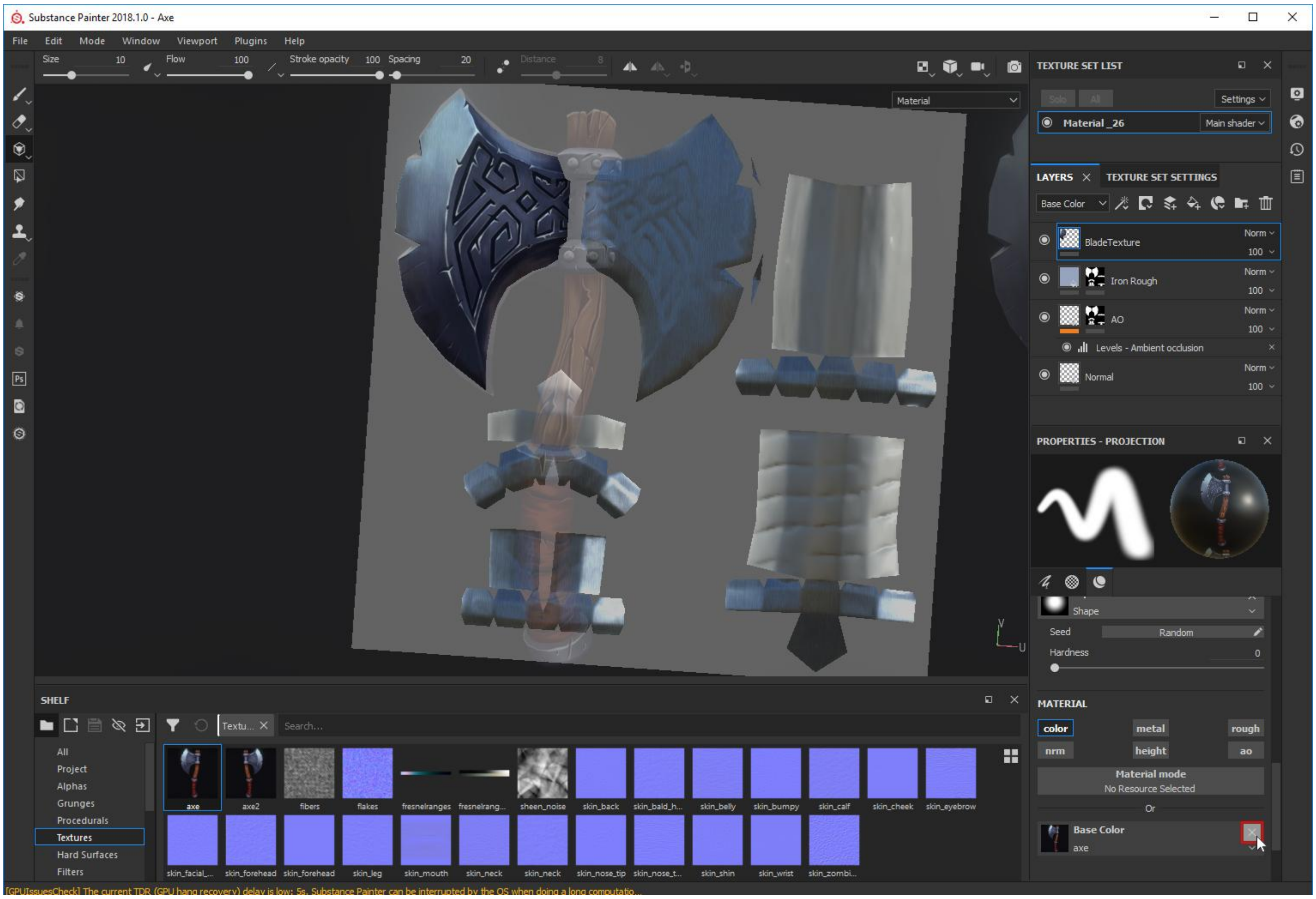
Draw it



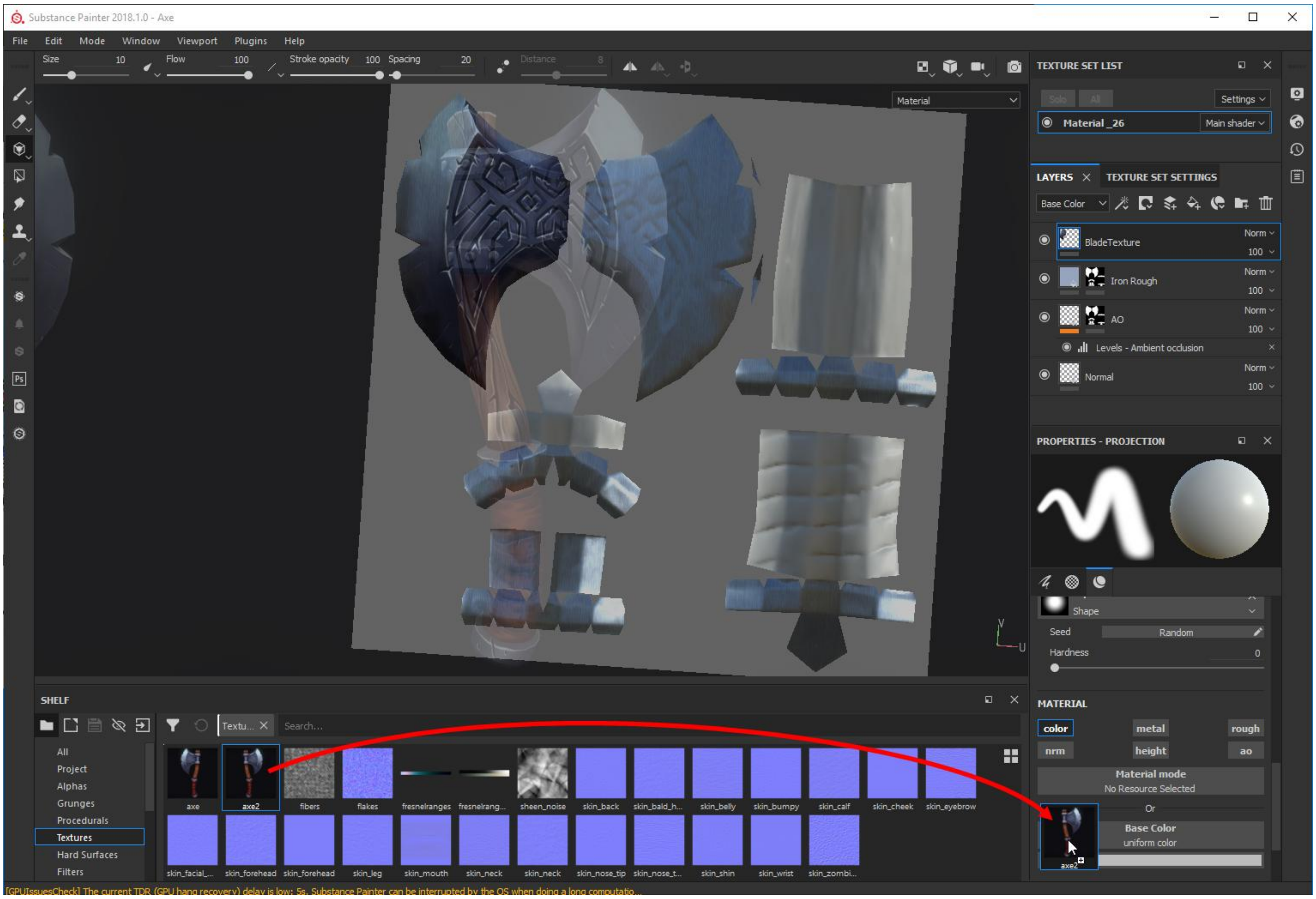
After finish one side axe blade



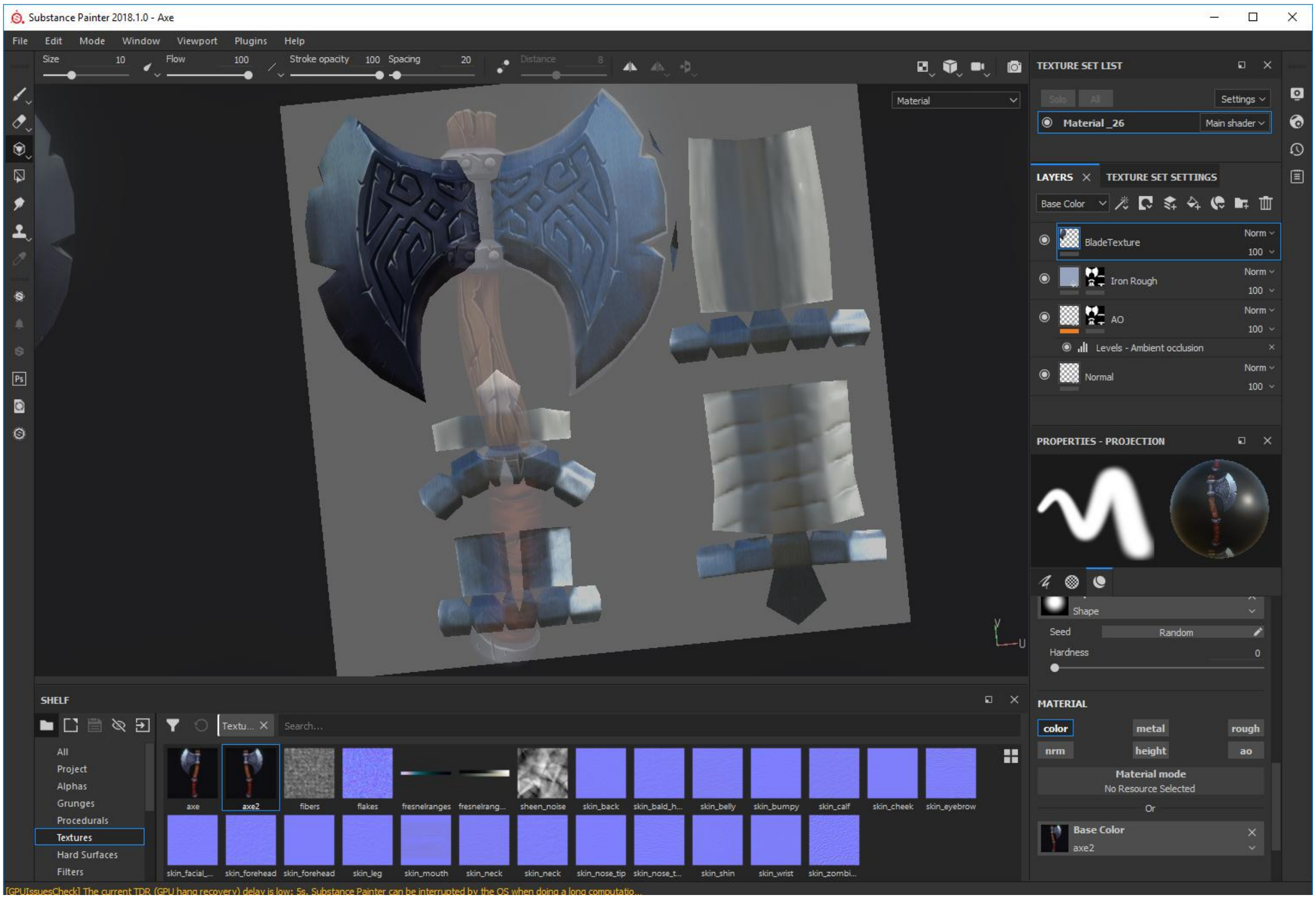
On right bottom, click “X” to close axe picture



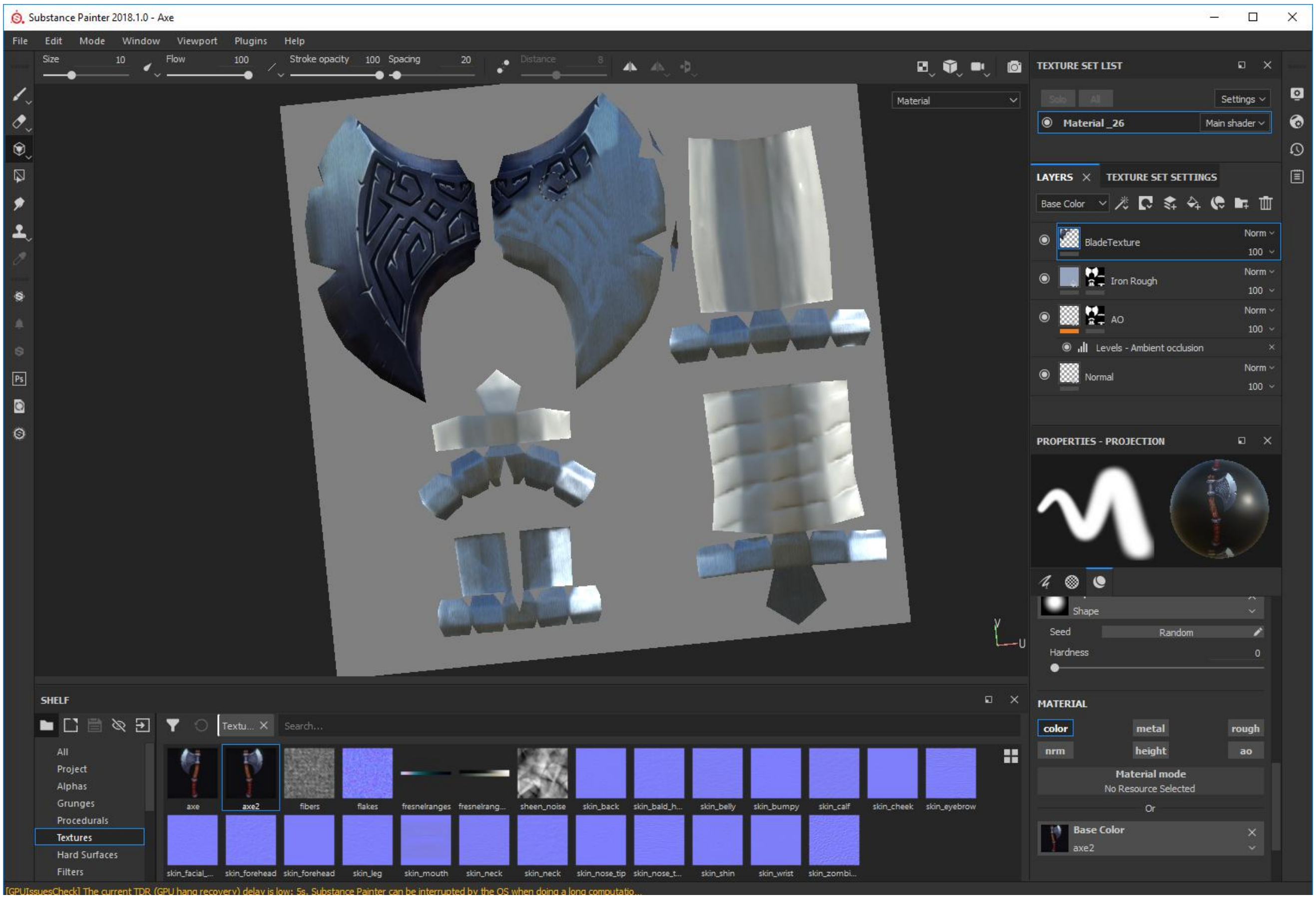
And drag another side axe to Base color



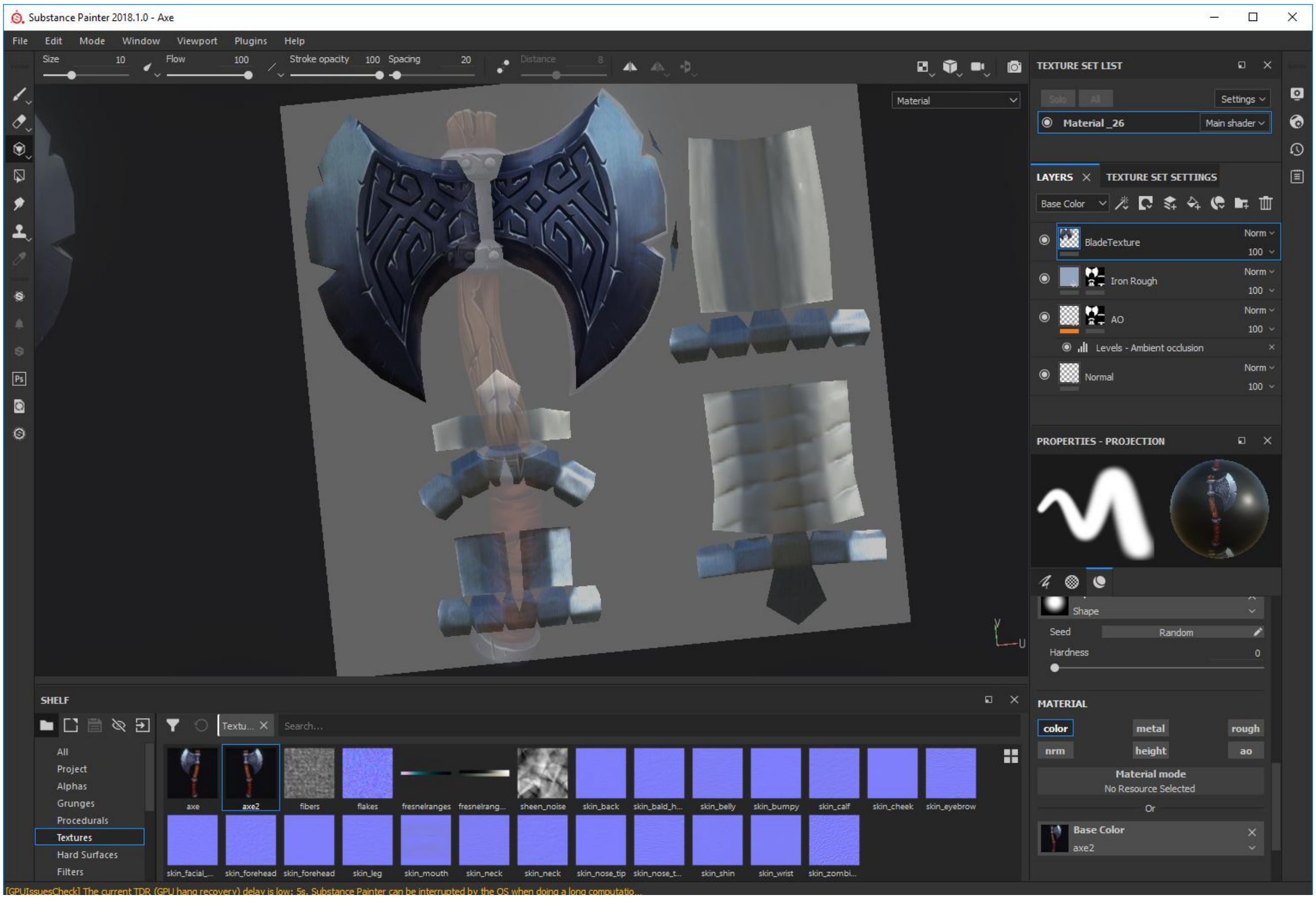
Repeat the same step, adjust and rotate UV before draw it



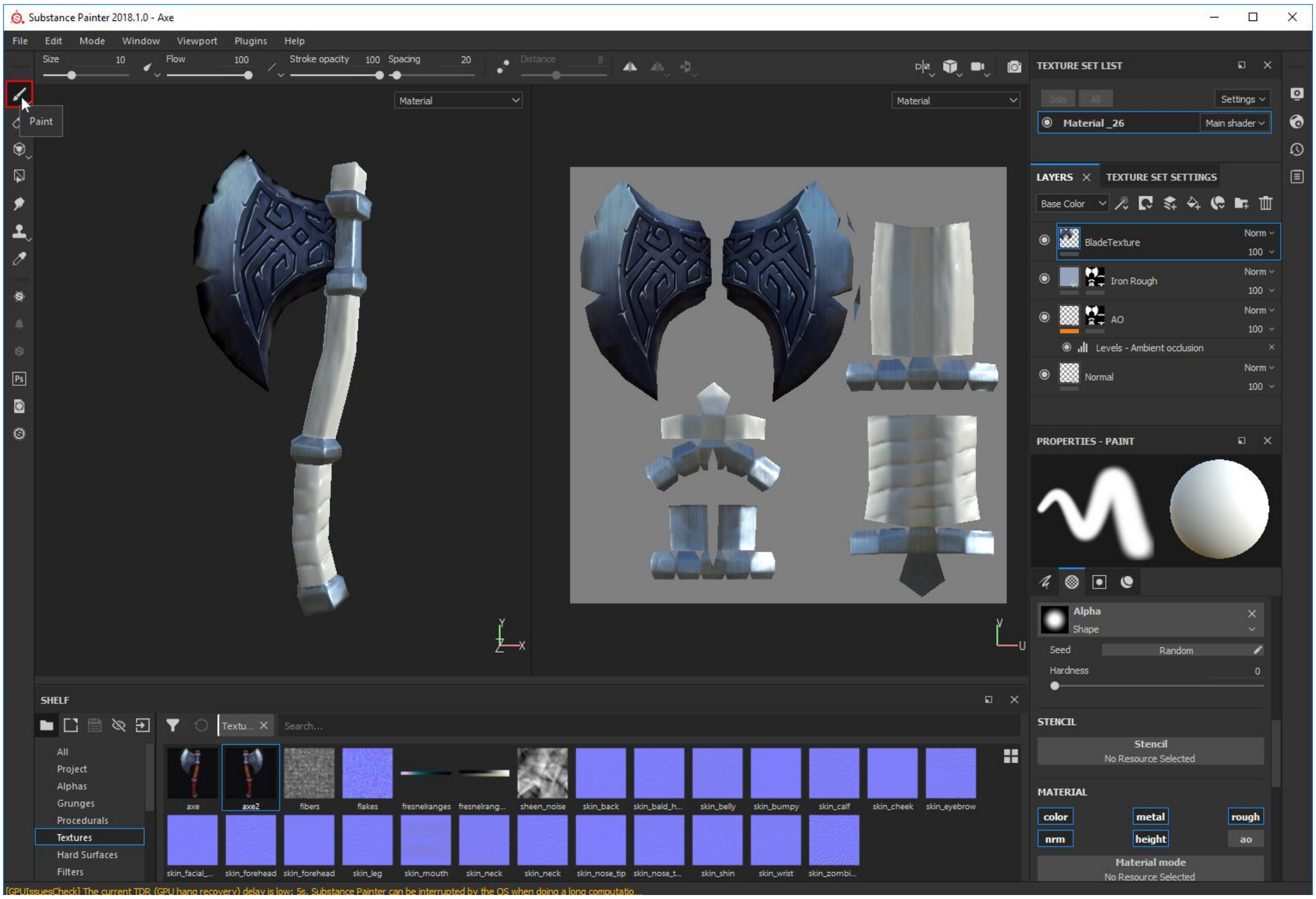
Drawing...



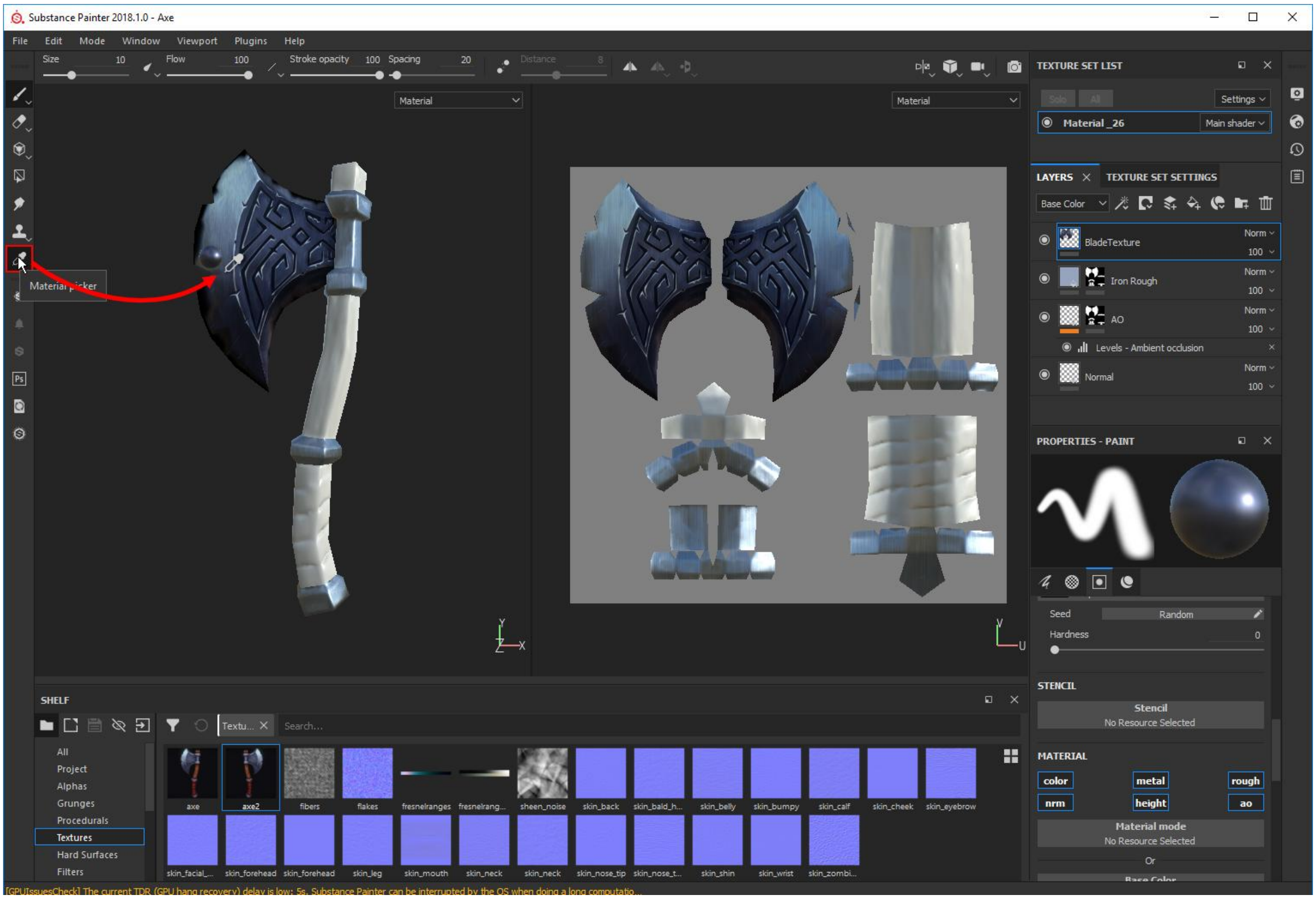
After finish draw it



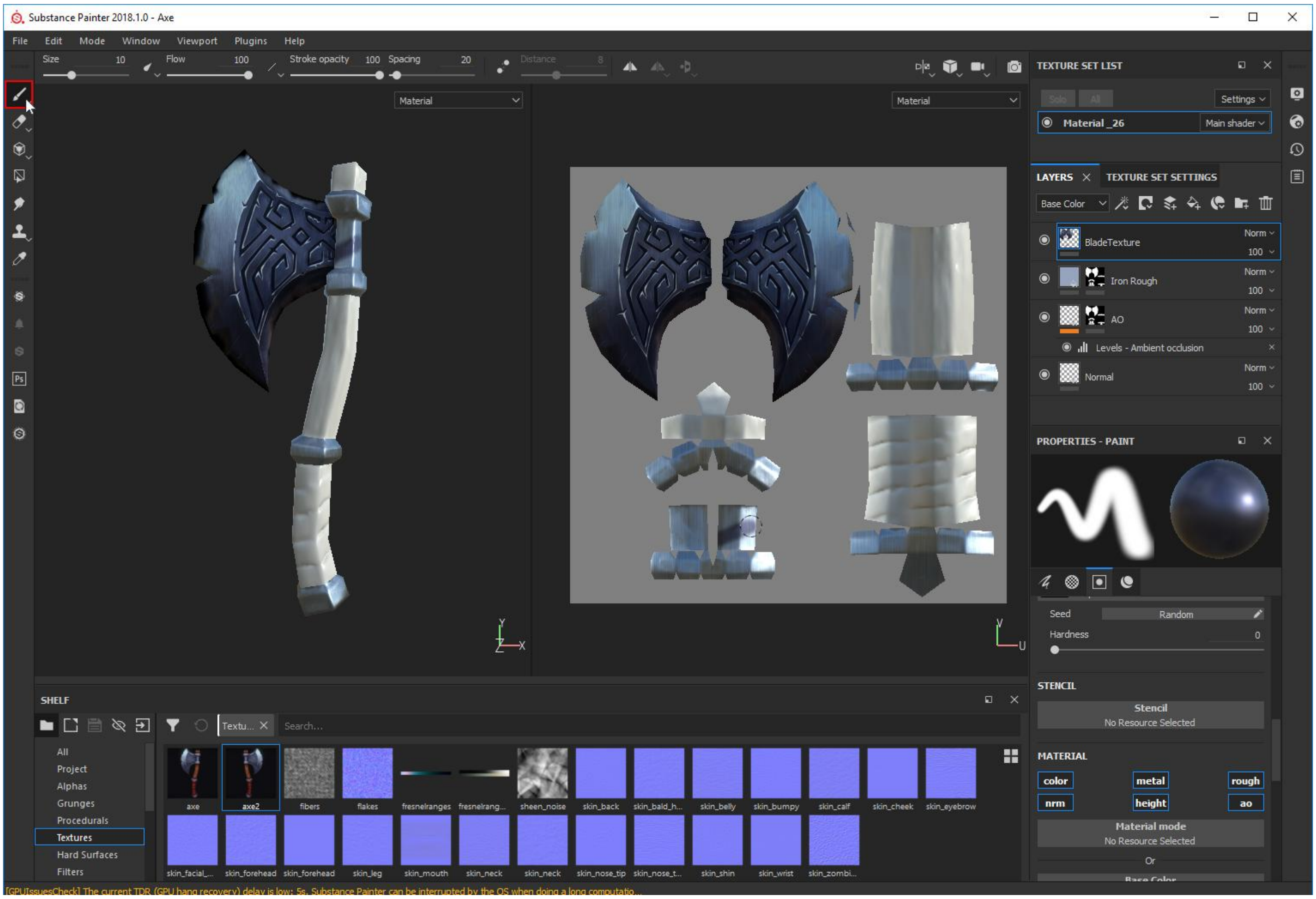
Click “Paint” to close the Projection



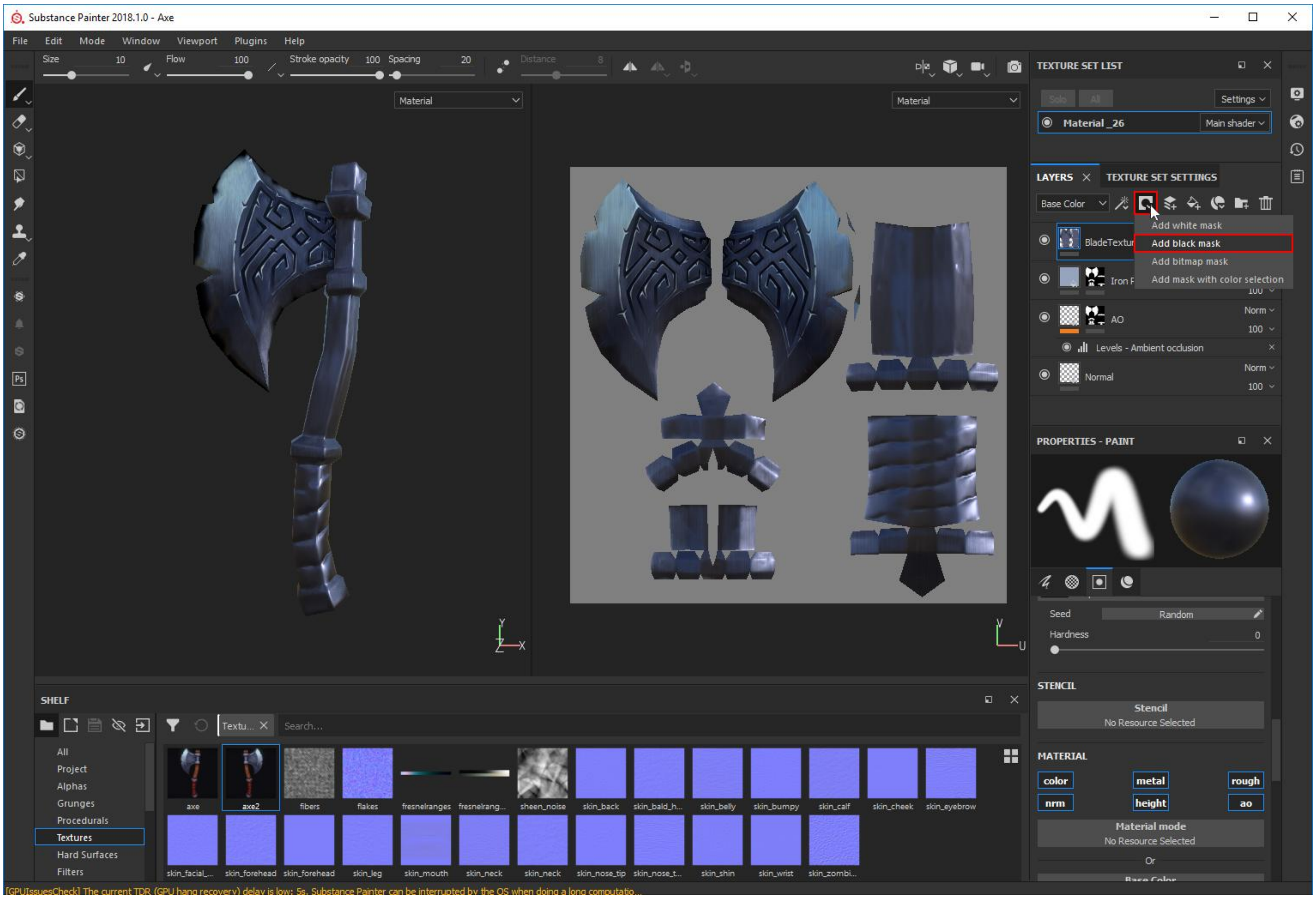
Click “Material Picker” and pick the color



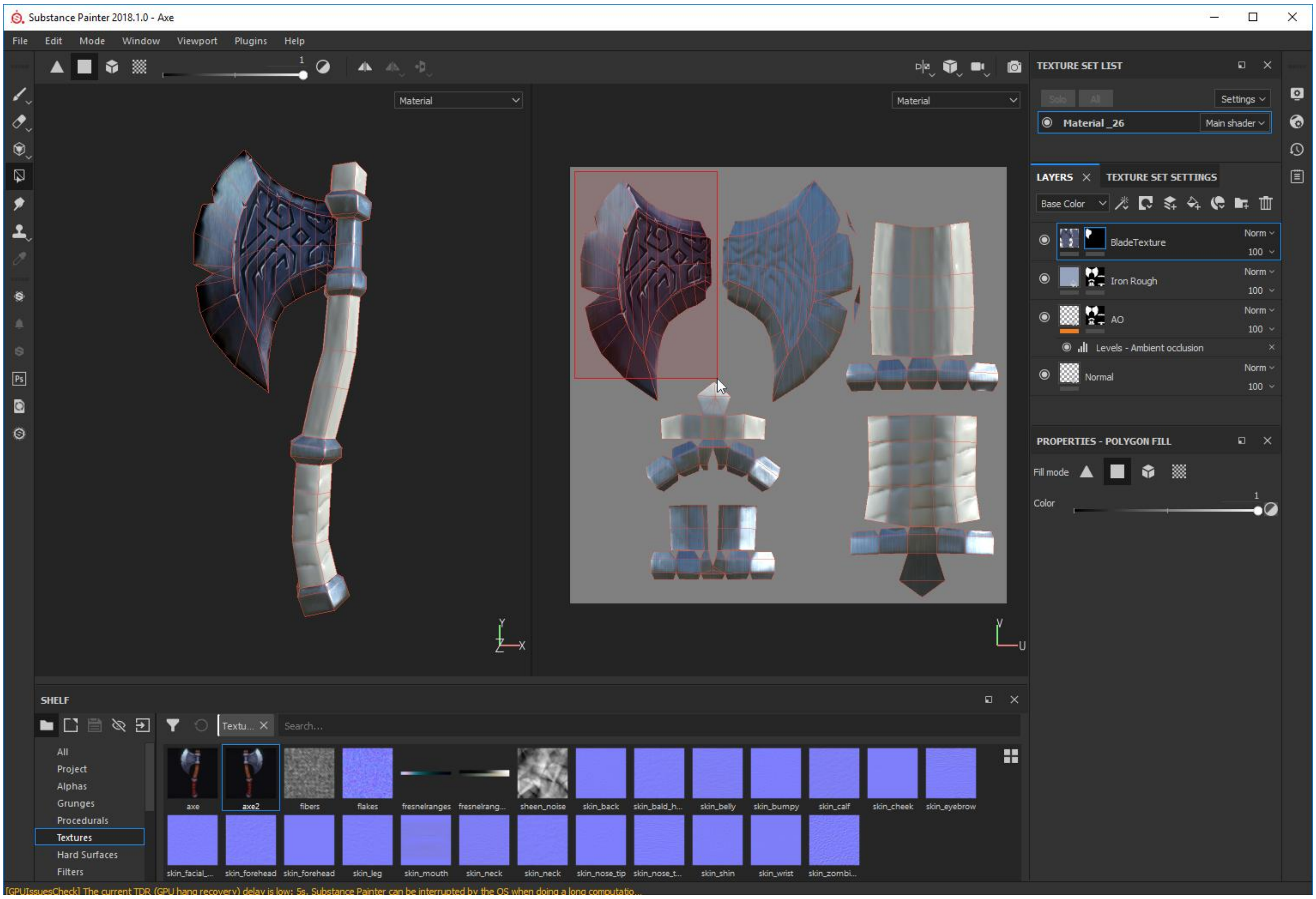
After pick color, click “Paint” and draw all the rest



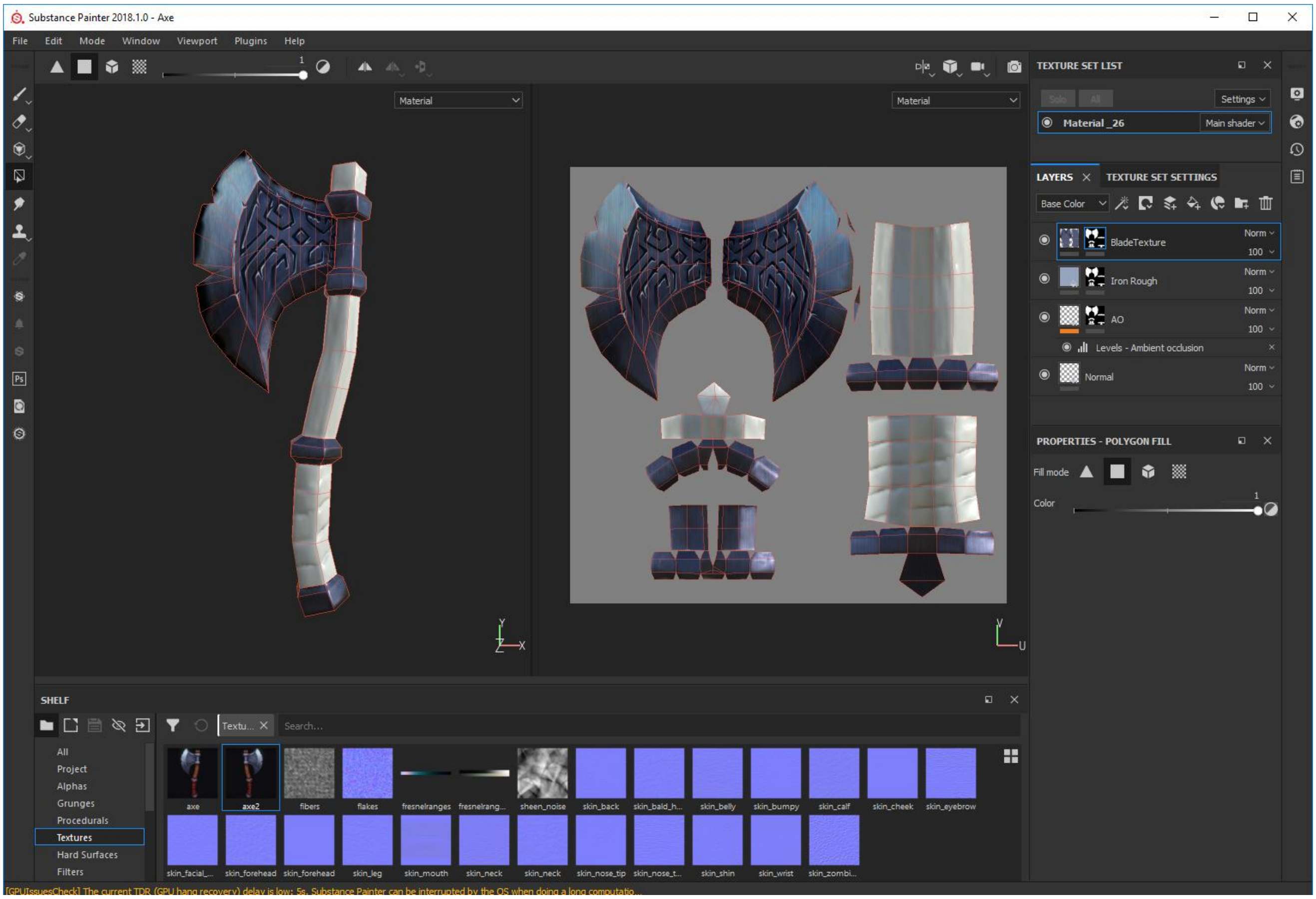
Add black mask



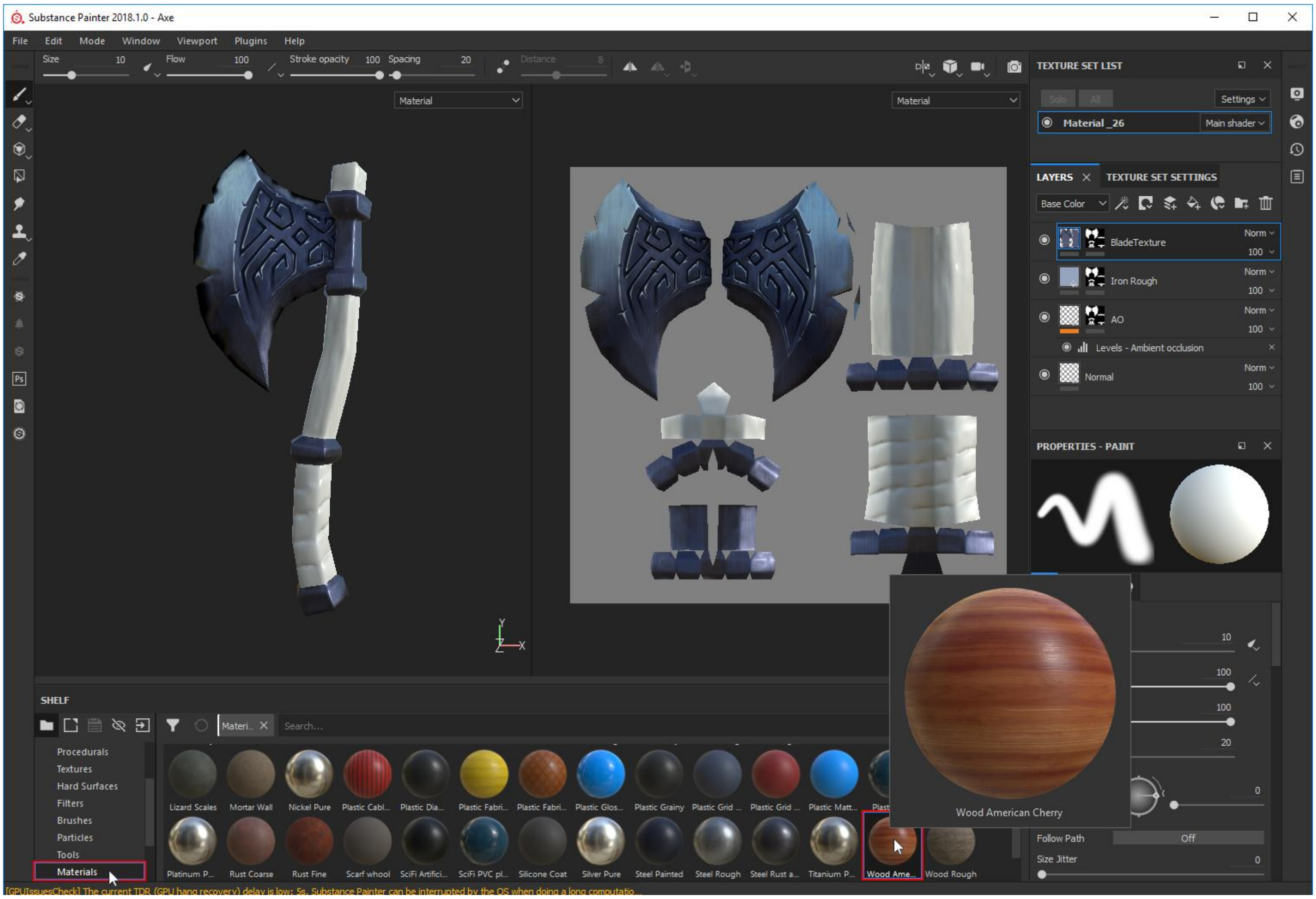
Use “Polygon Fill” and highlight metal part



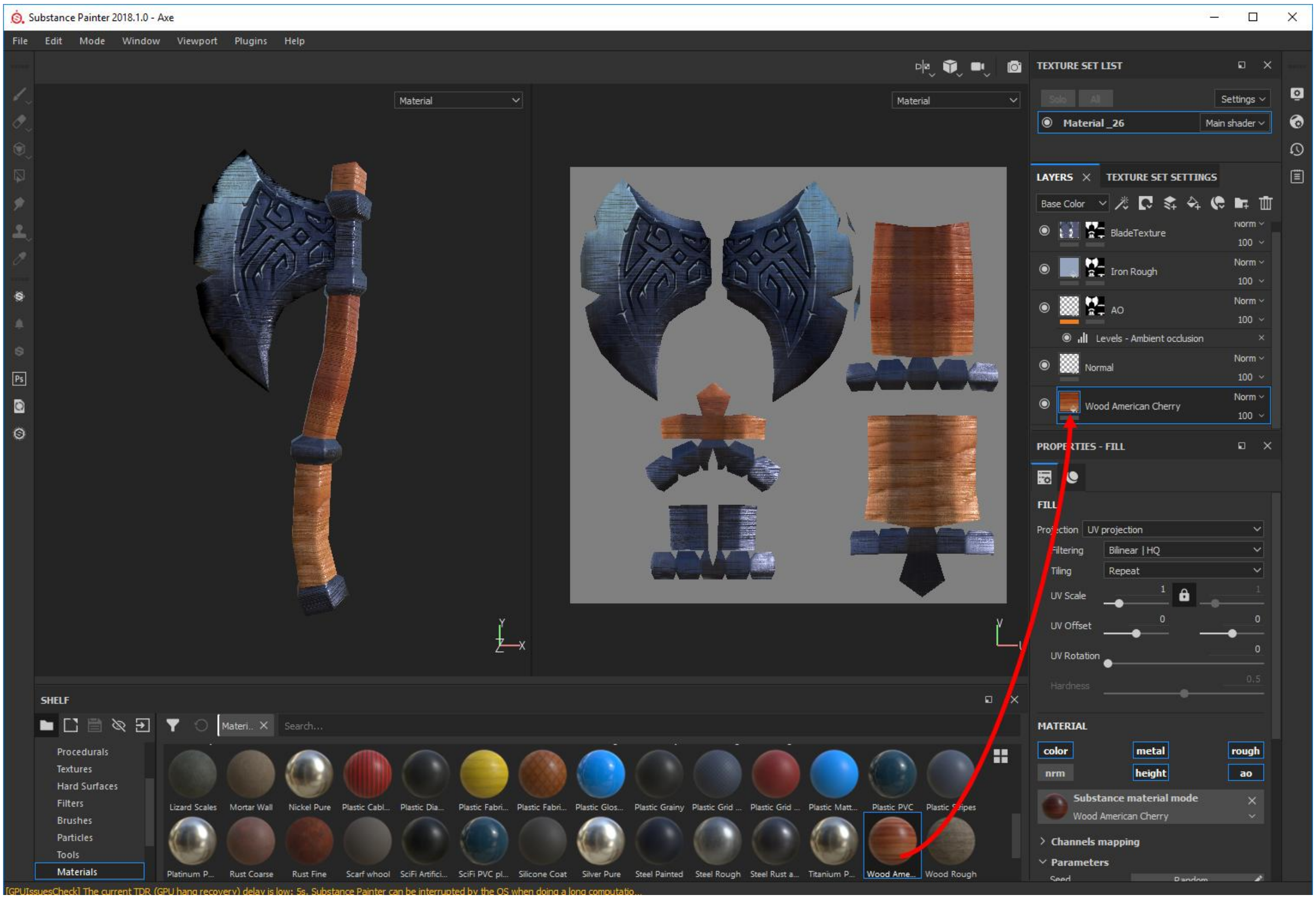
Done



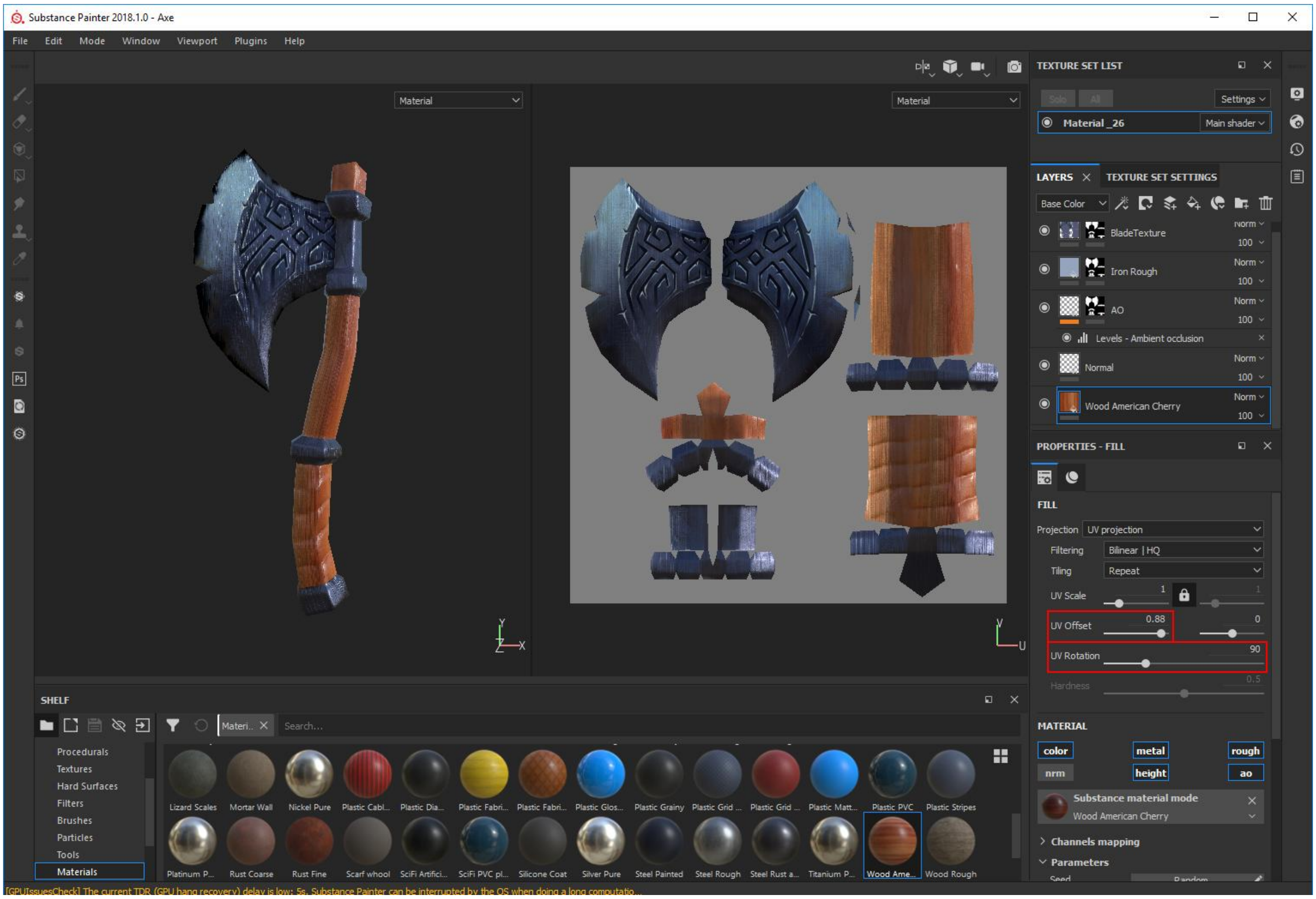
Materials → Wood American Cherry



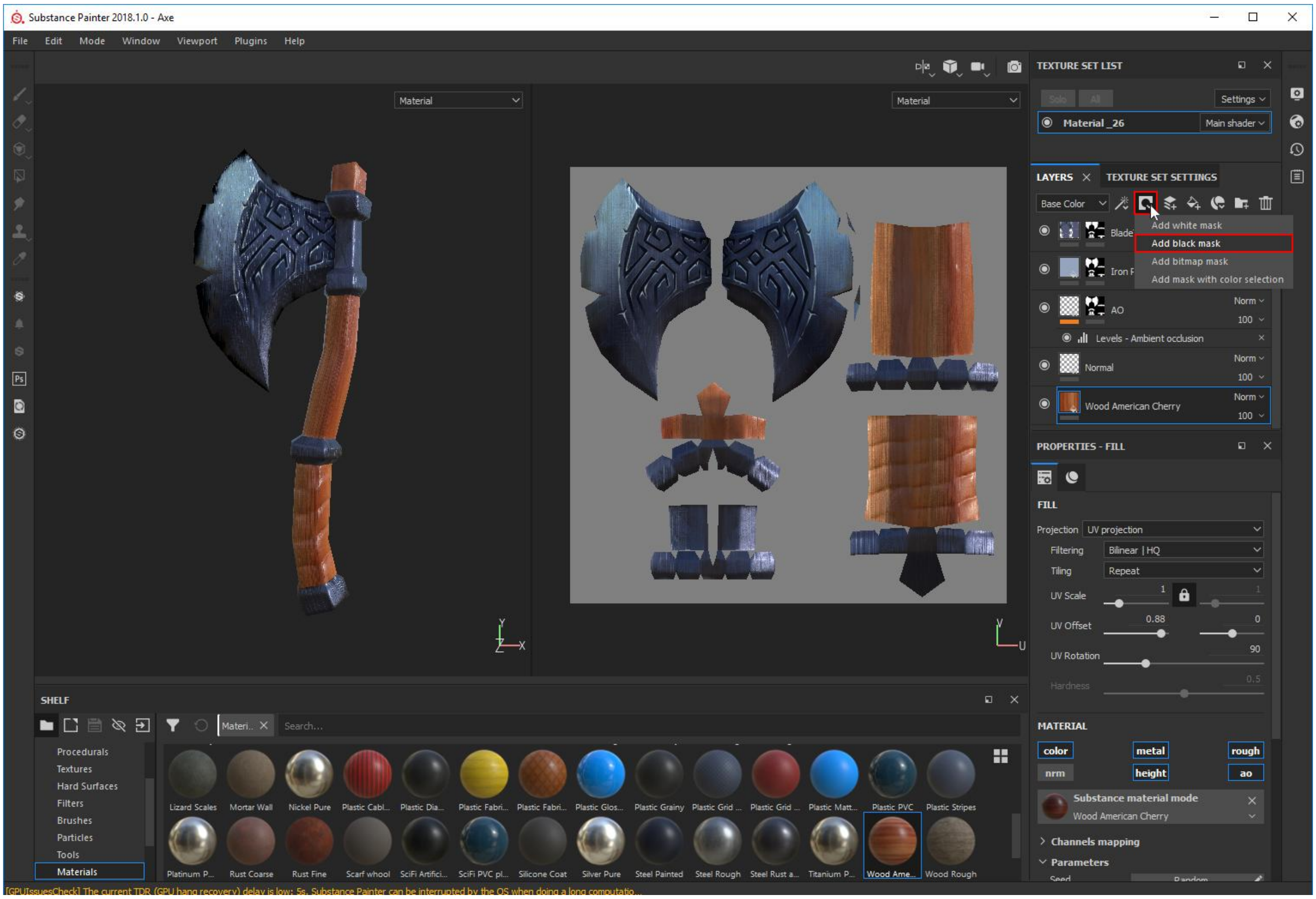
Import Wood American Cherry to layers



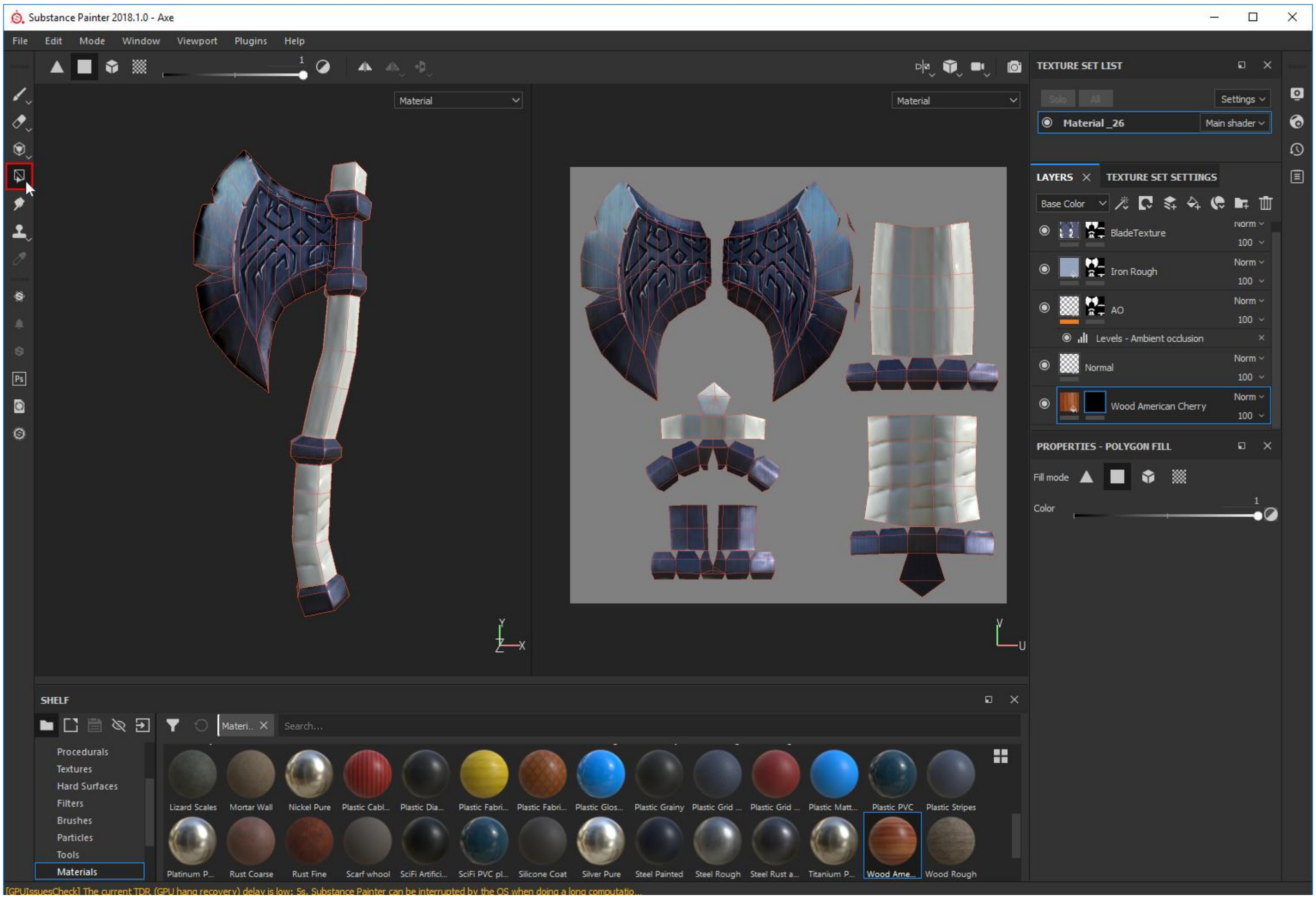
Adjust UV Offset and UV Rotation (depends on your axe uv)



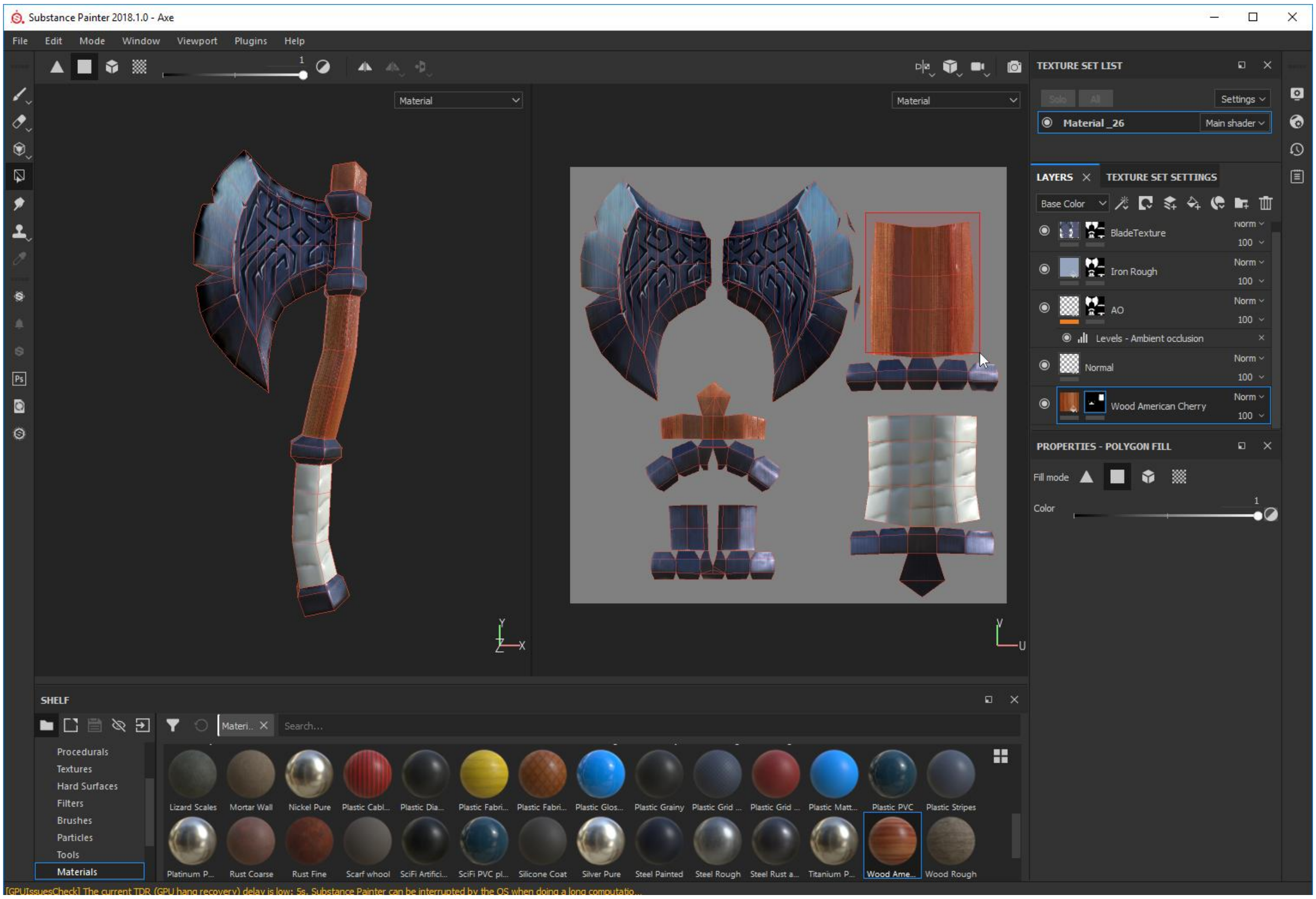
Add black mask on Wood American Cherry



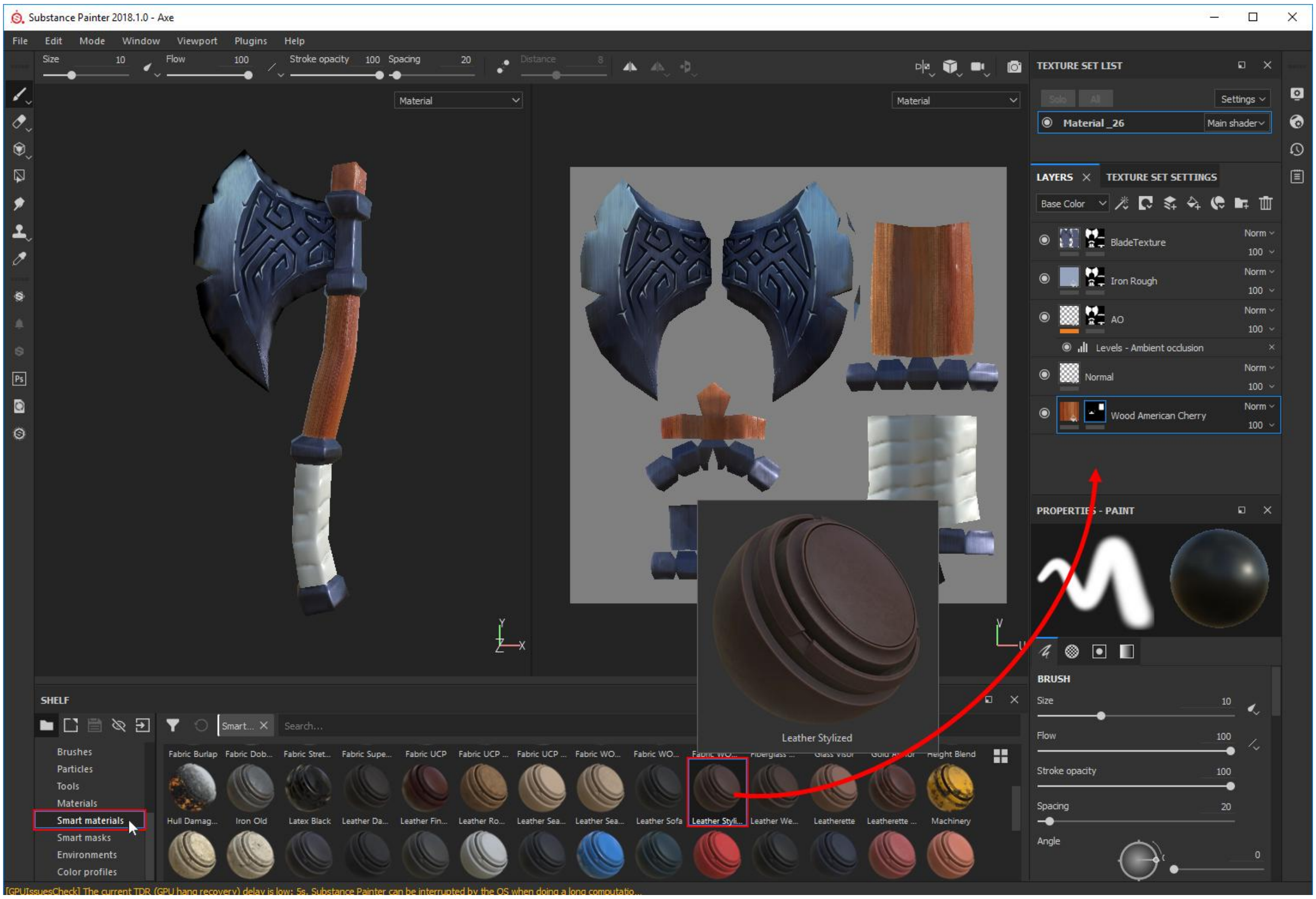
Click on “Polygon Fill”



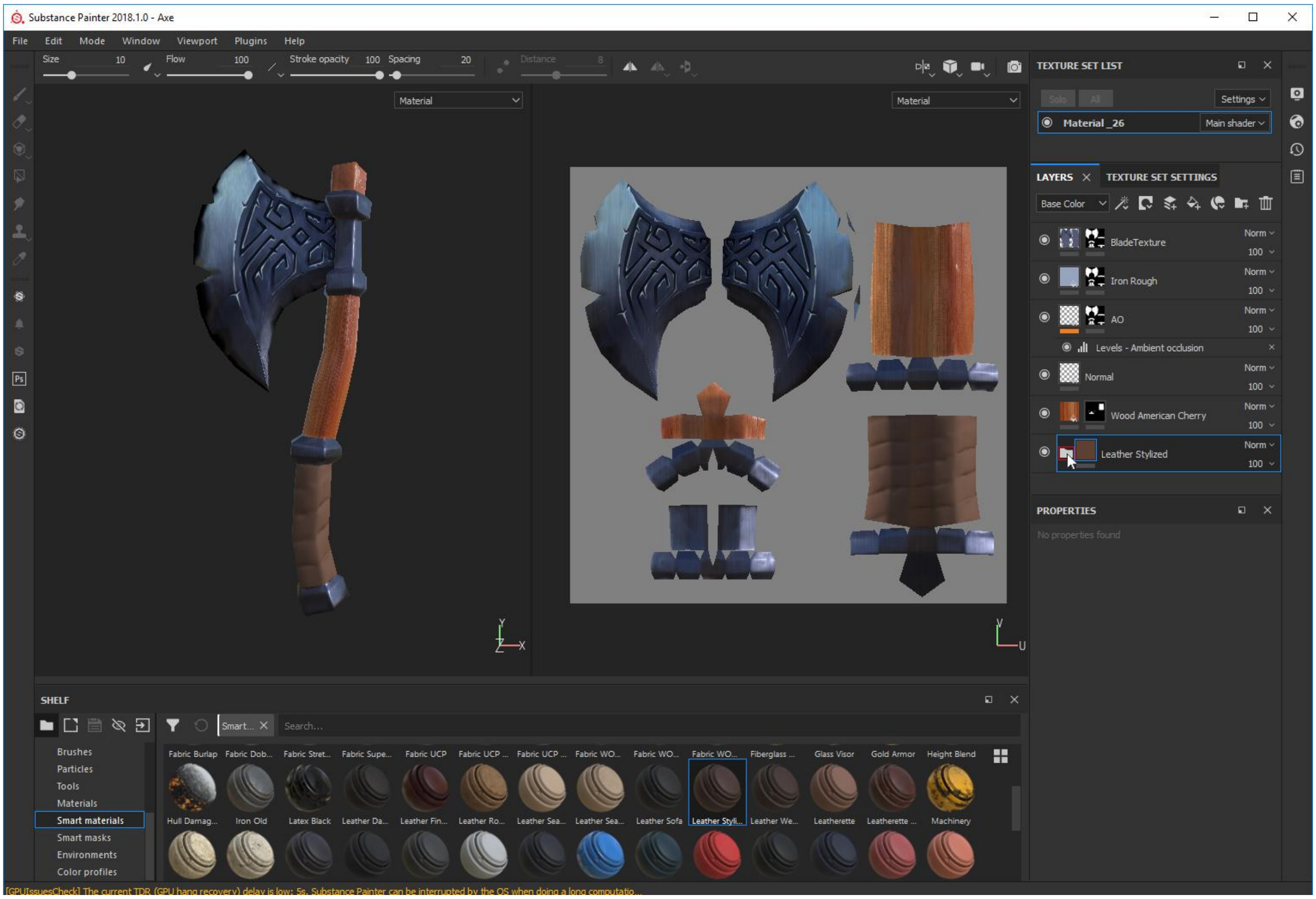
Use polygon fill and highlight the wooden part



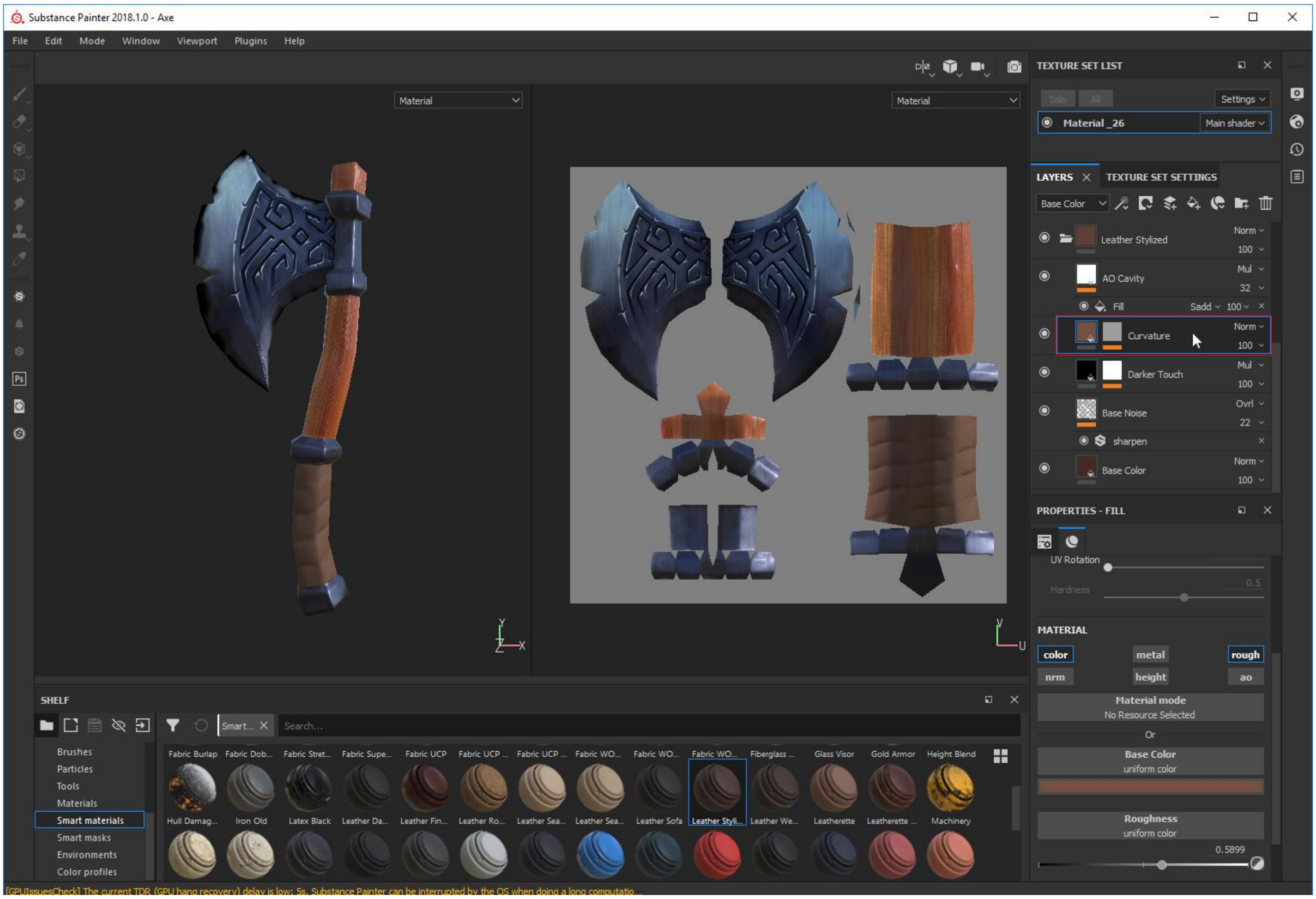
Smart materials → Leather Stylized → import to layers (for handle part)



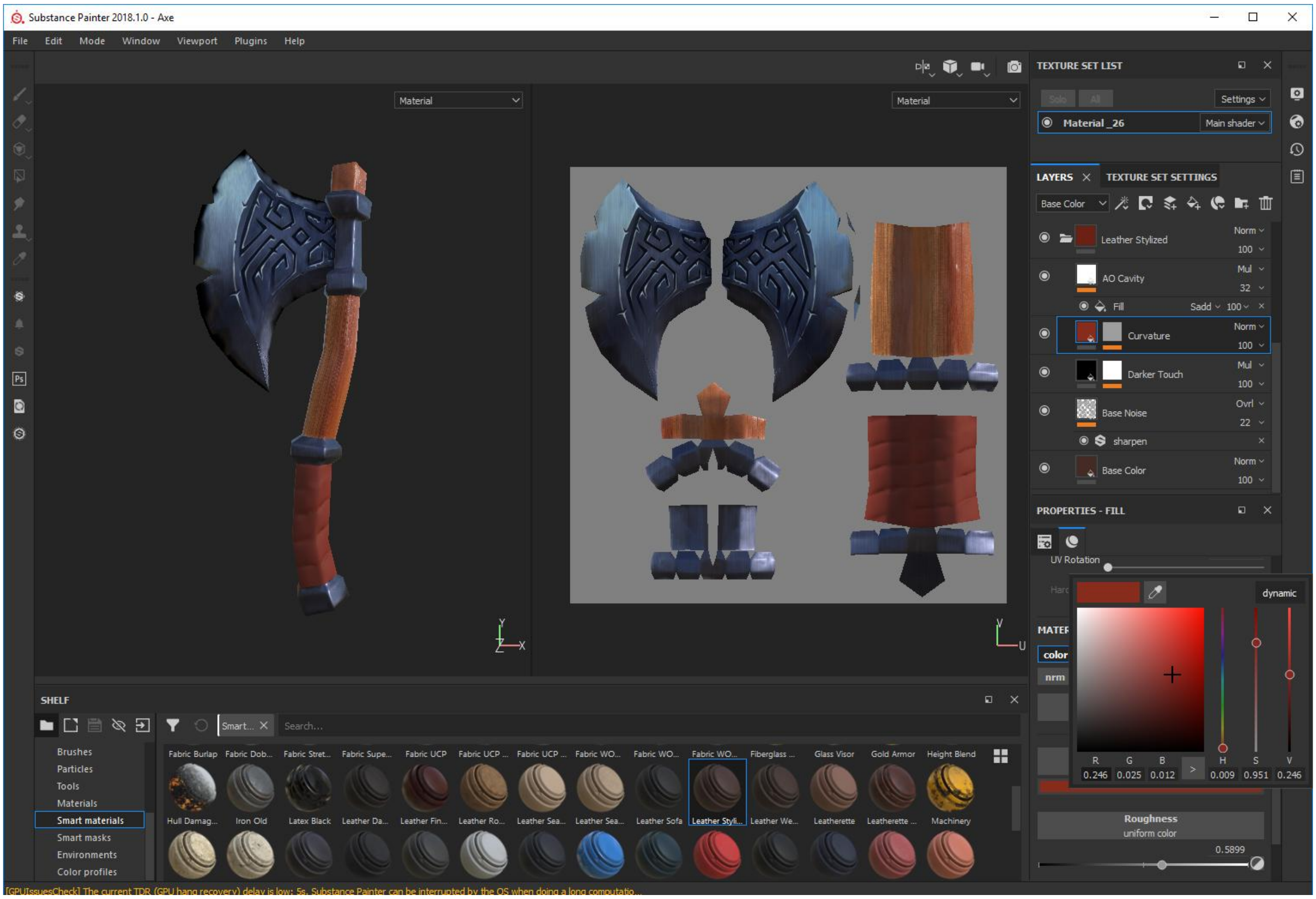
Click “folder” icon to expand leather stylized layer



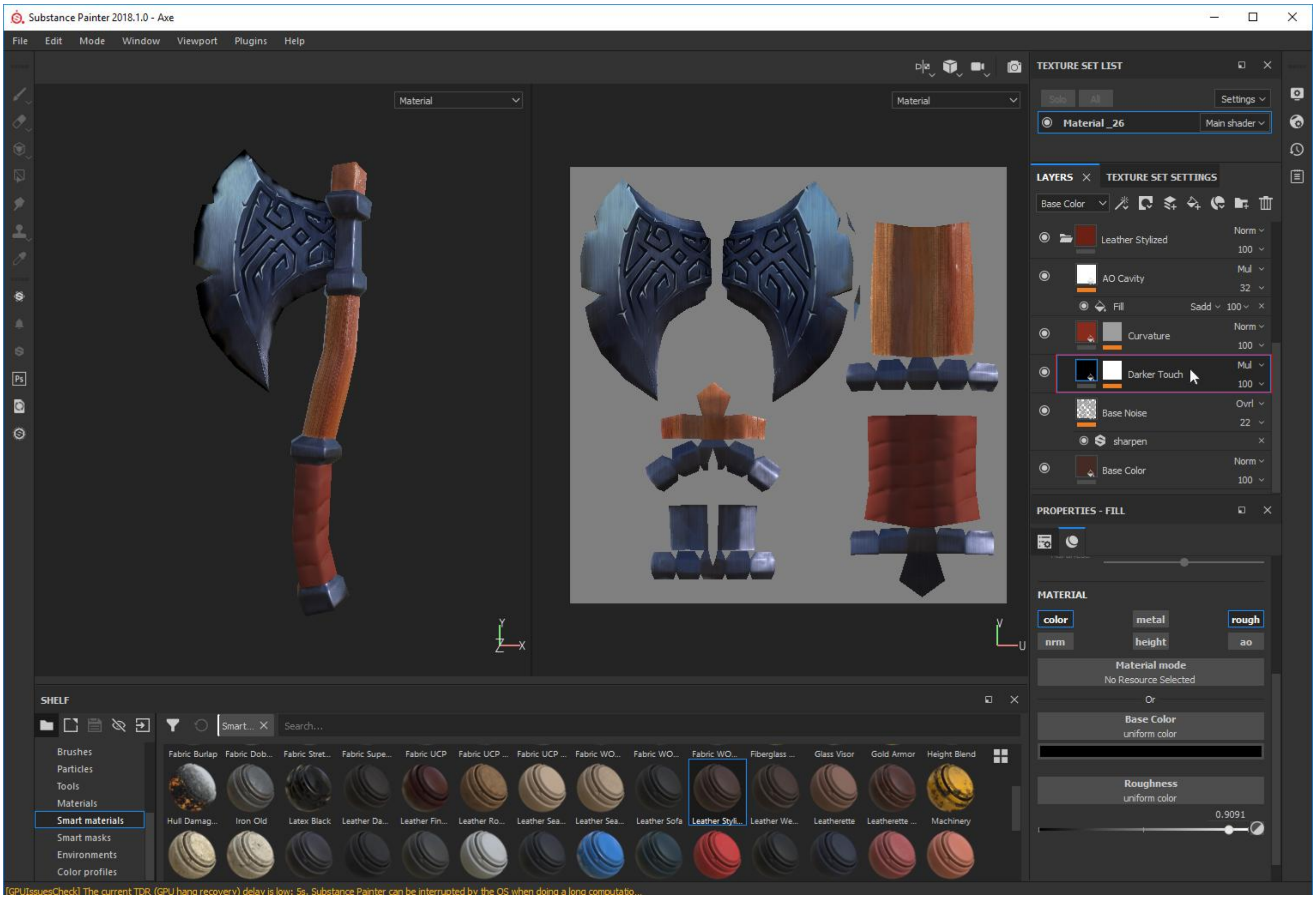
Select “Curvature” layer, we need to edit the base color



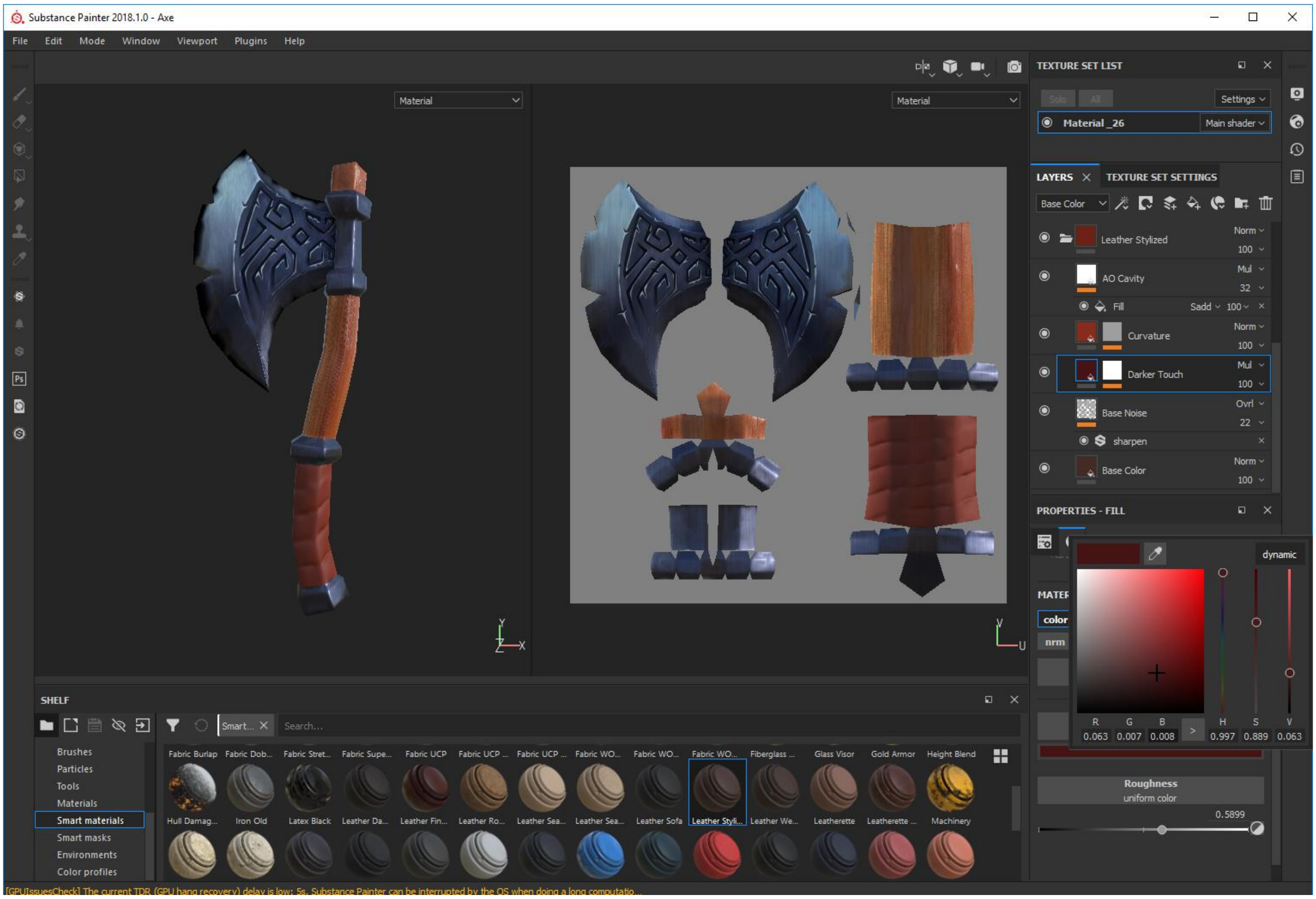
Click base color and change to a little bit red color



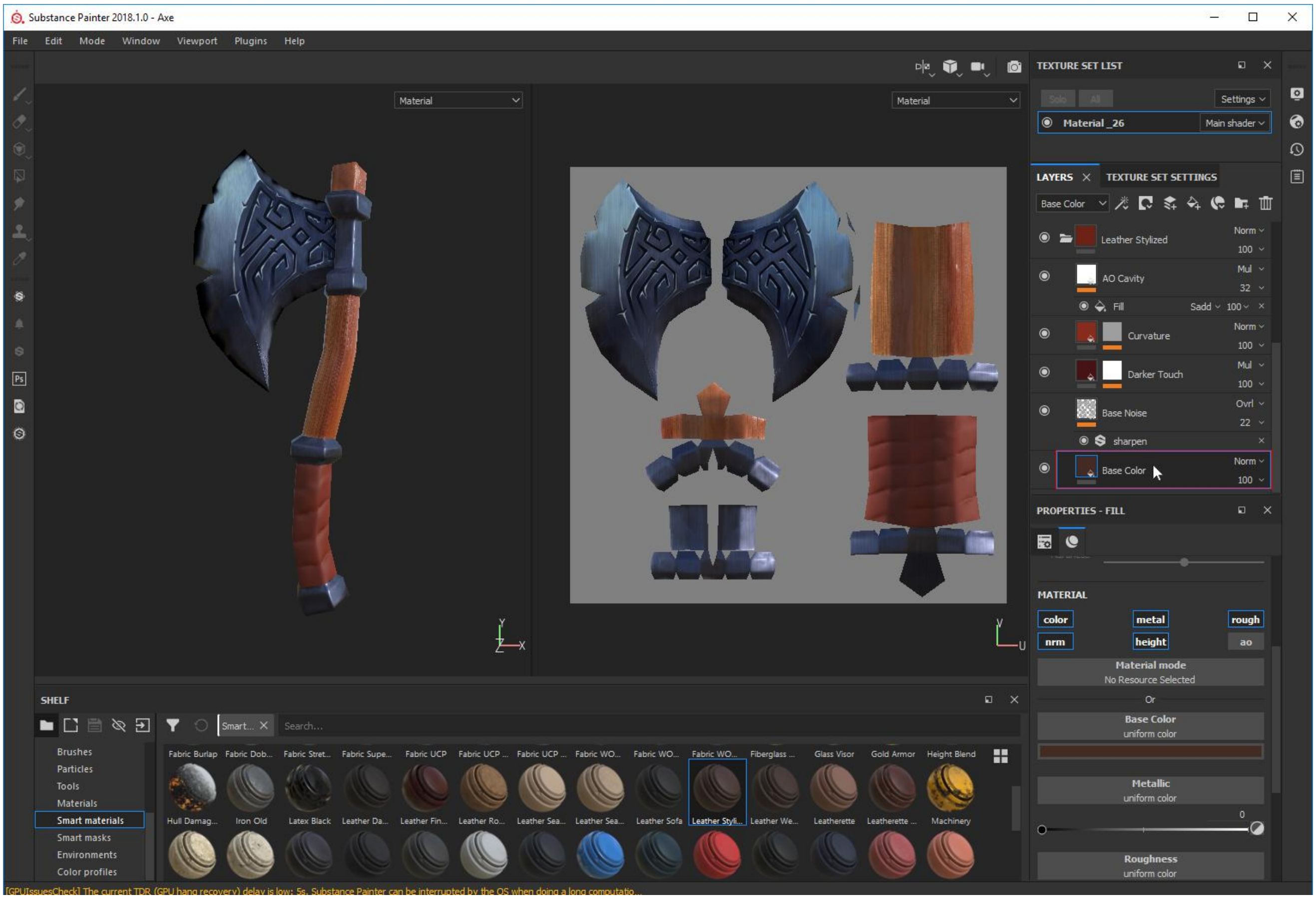
Select “Darker Touch” layer



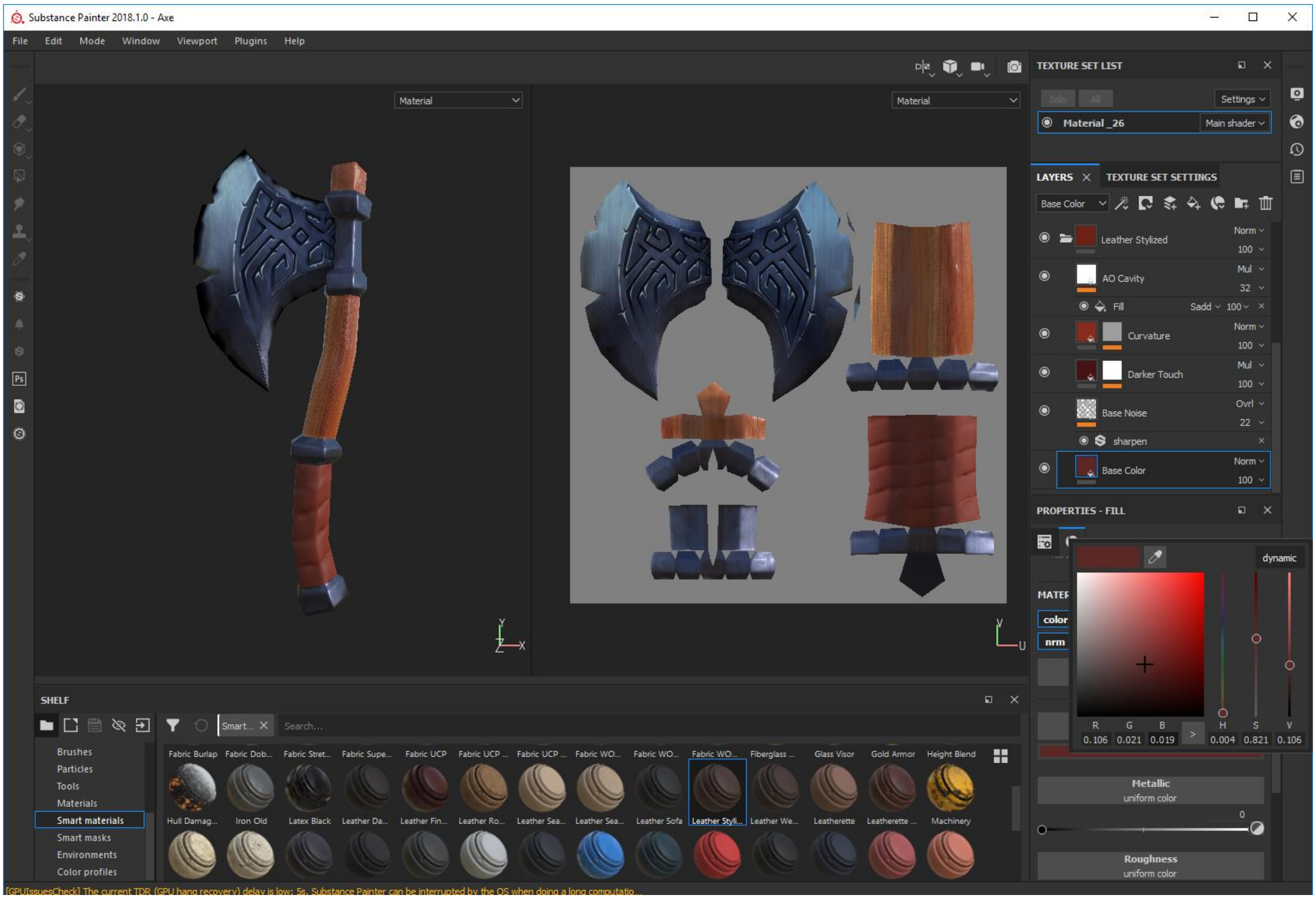
Change the base color to brown color



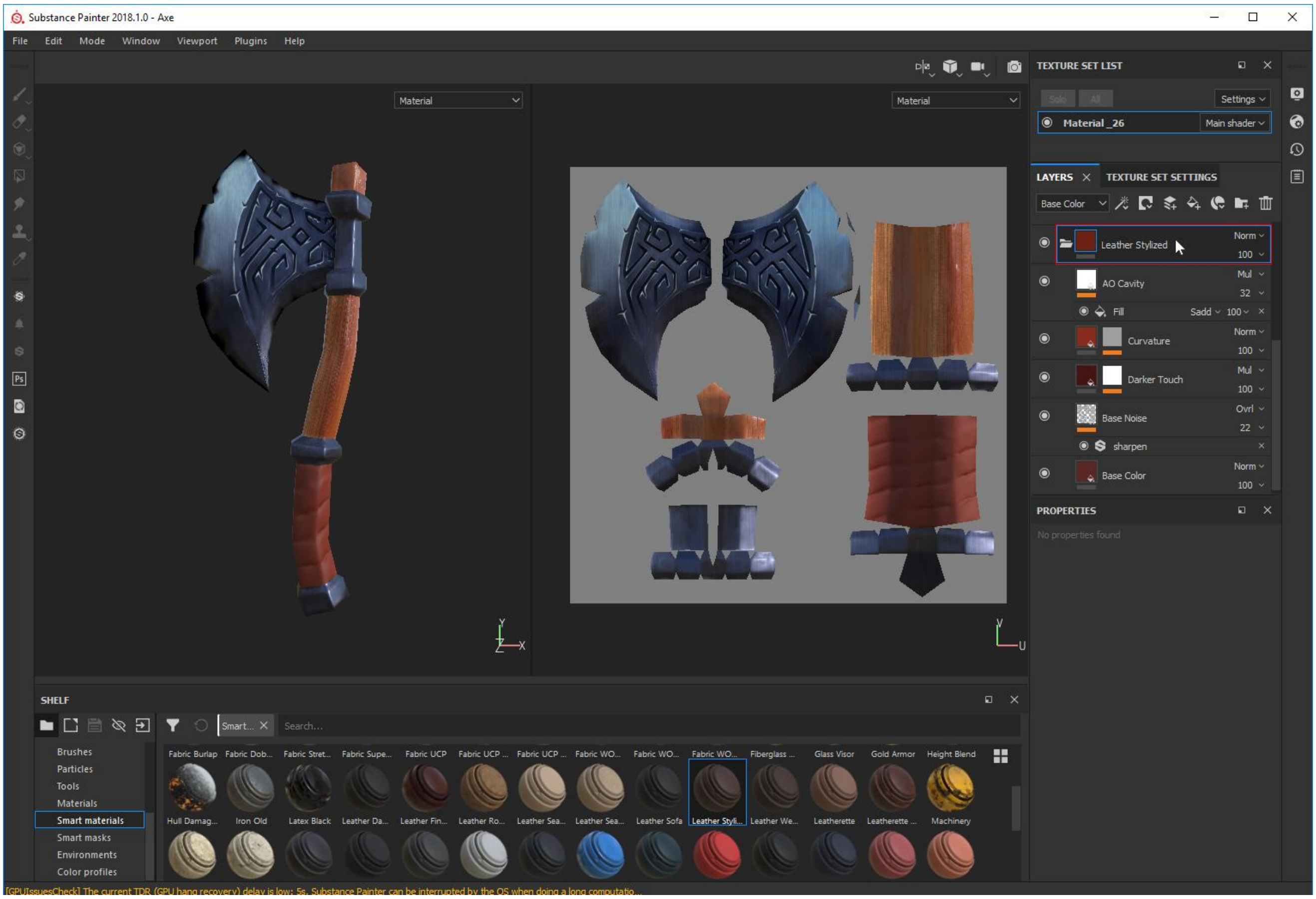
Select the “Base Color” layer



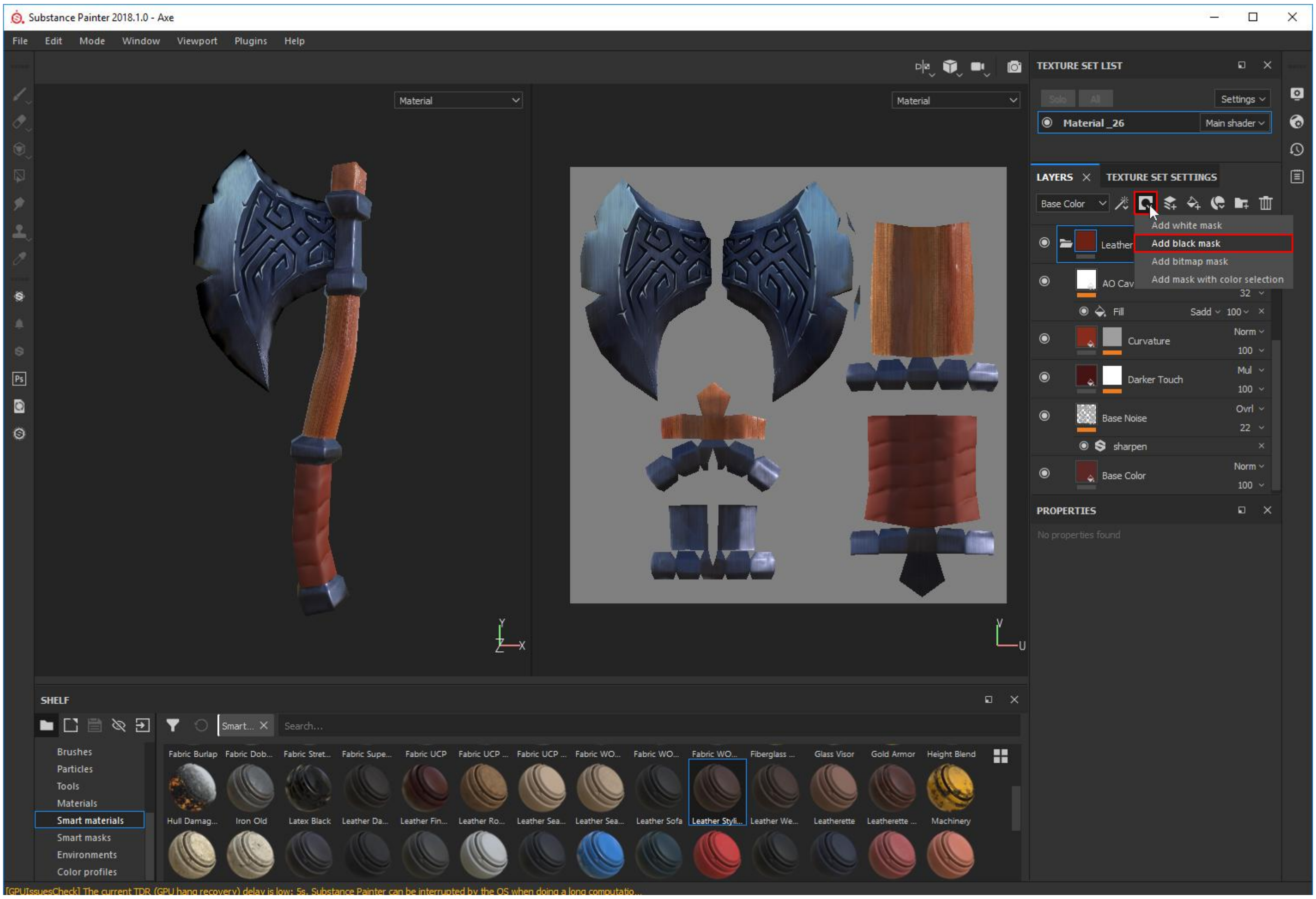
Edit the brown color, with a little bit red for handle part



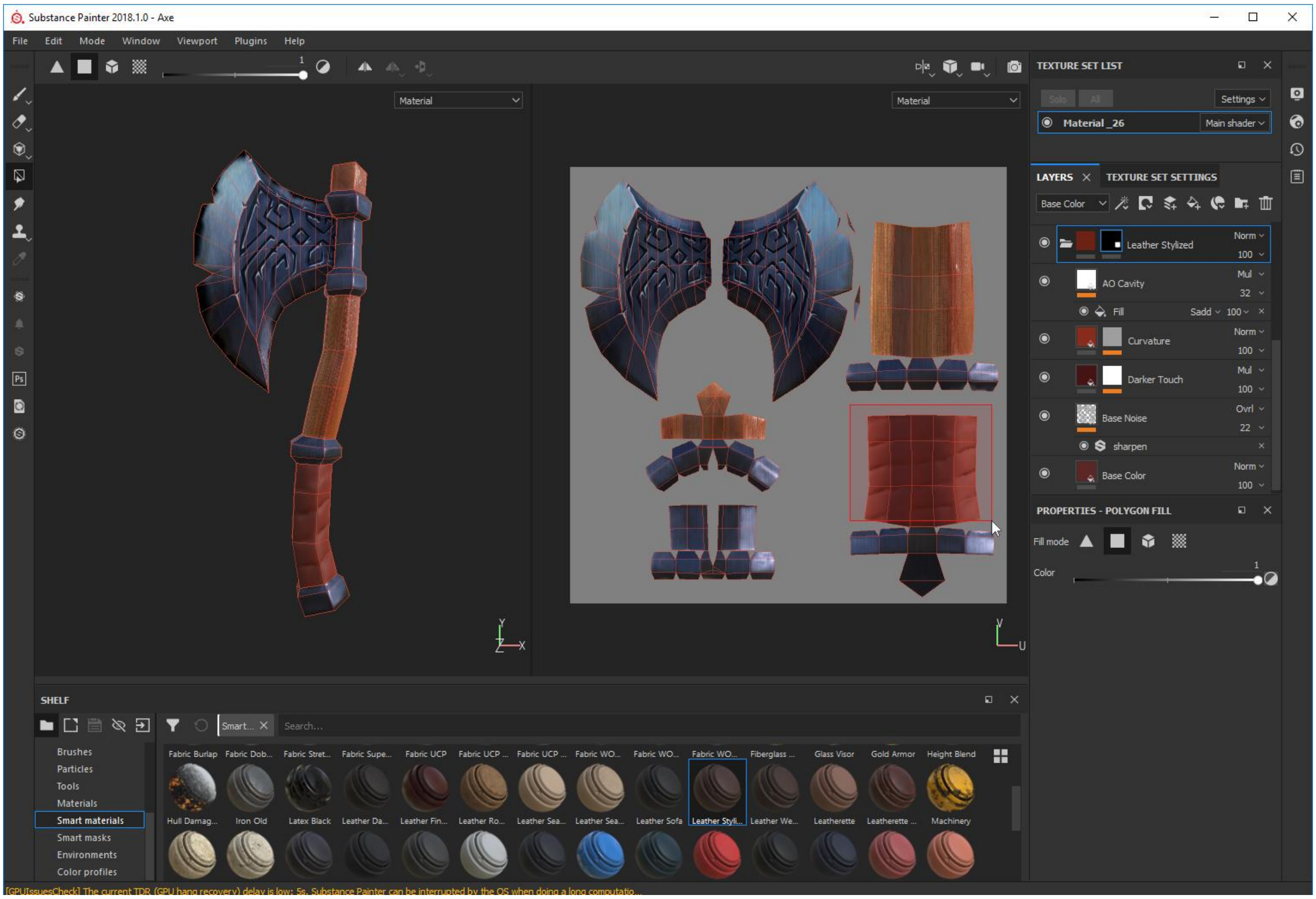
After finish edit color, select “Leather Stylized” layer



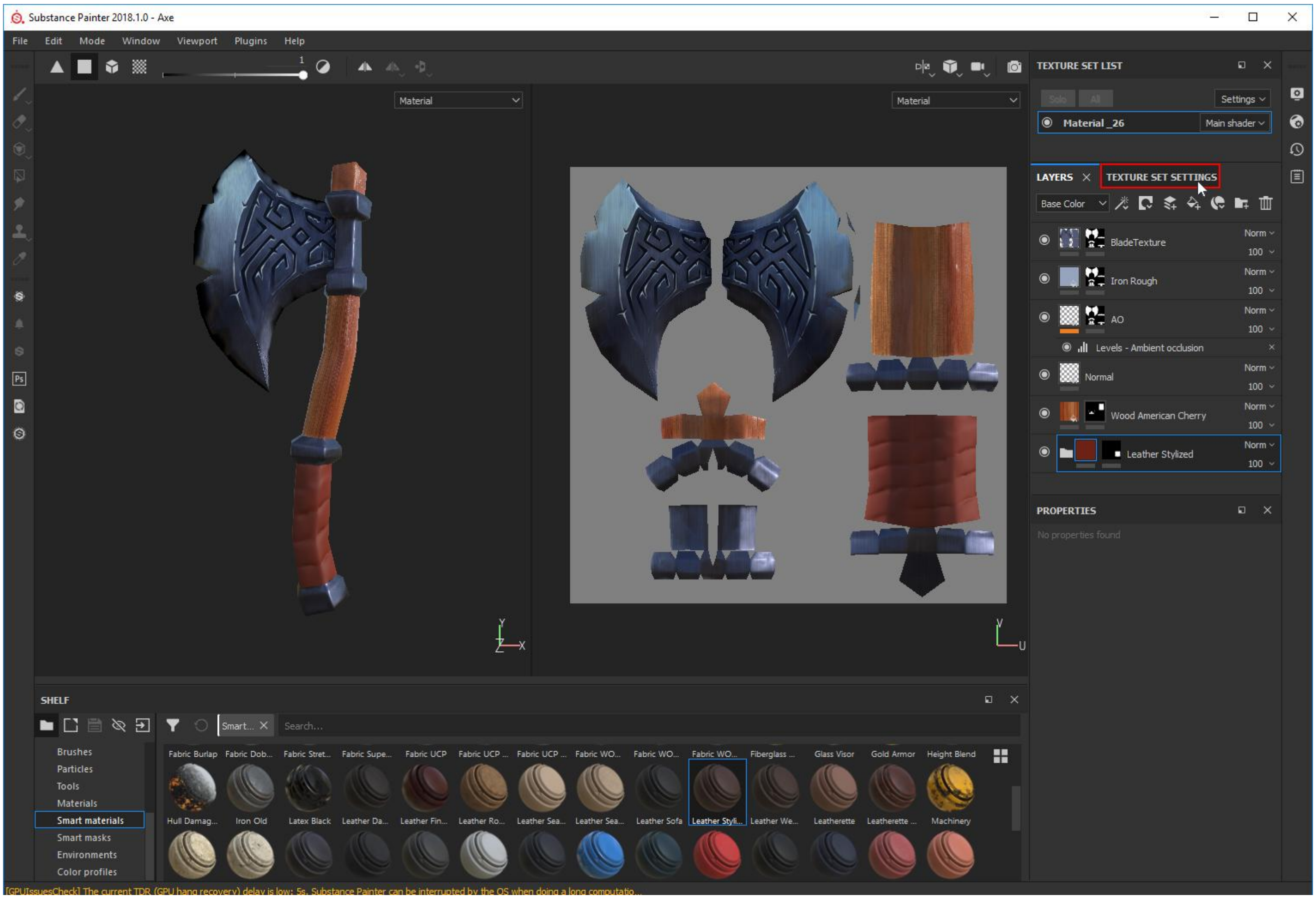
Add black mask on Leather Stylized layer



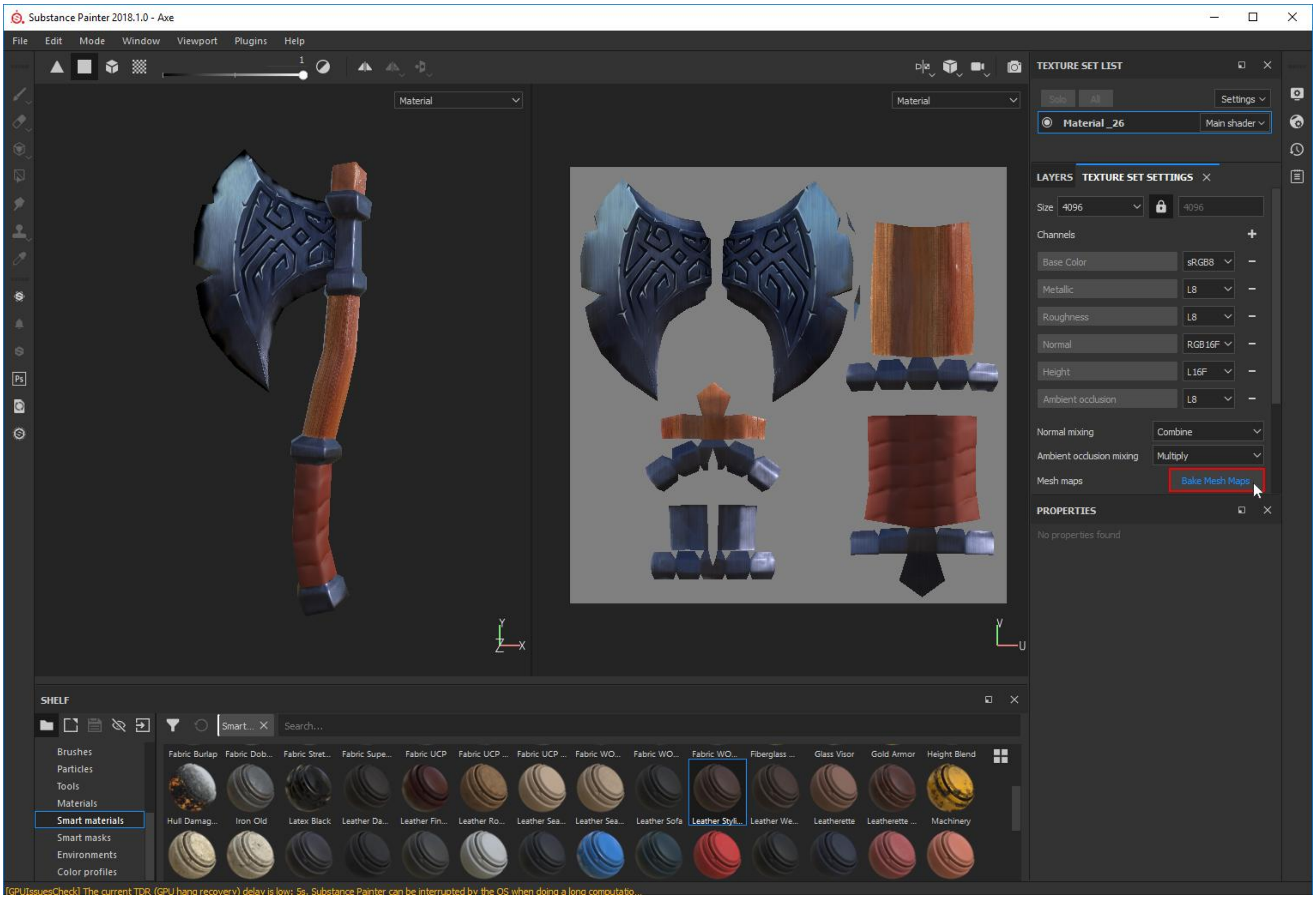
Use Polygon Fill and highlight on handle part uv



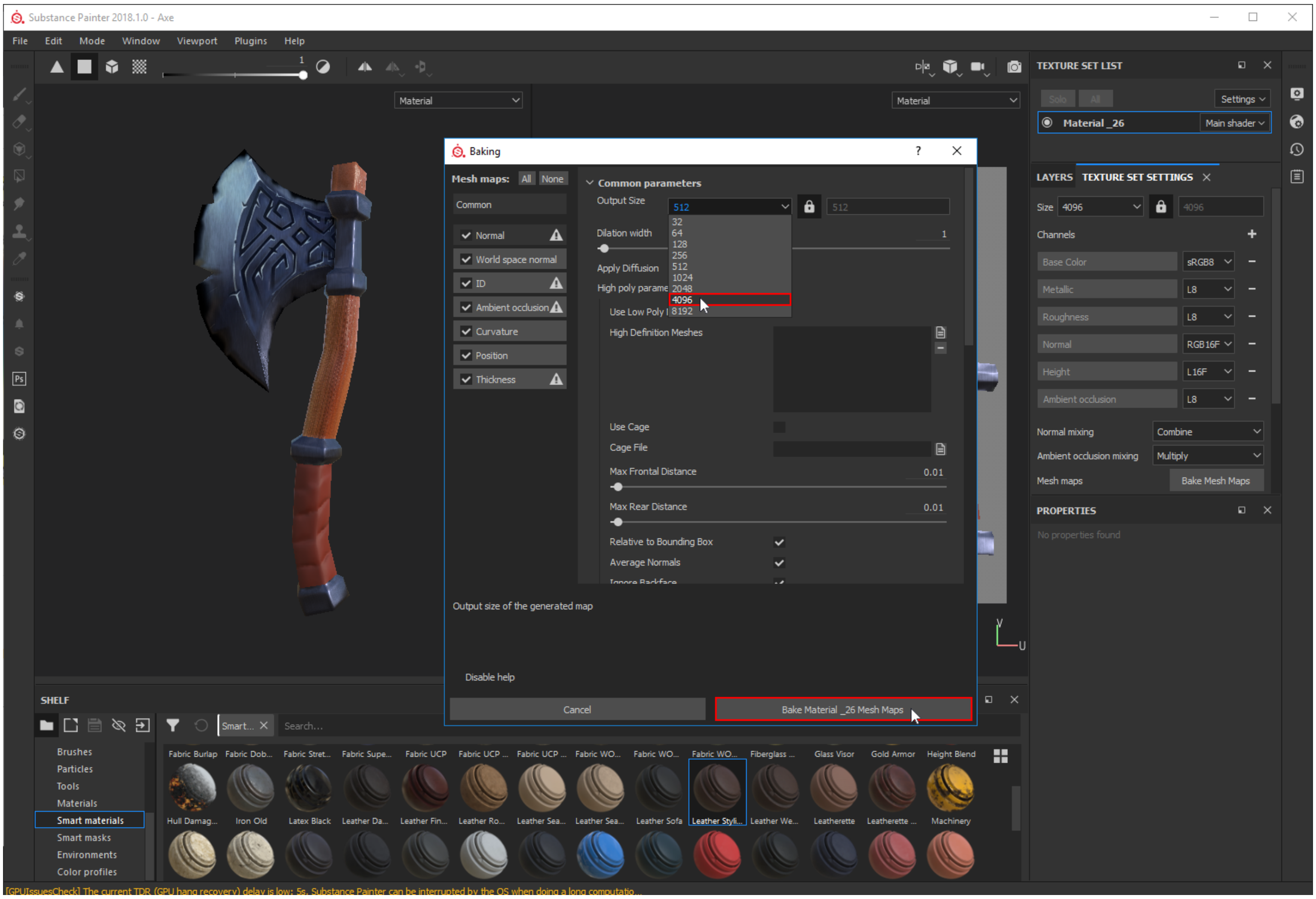
Done, now click "Texture Set Settings" for baking



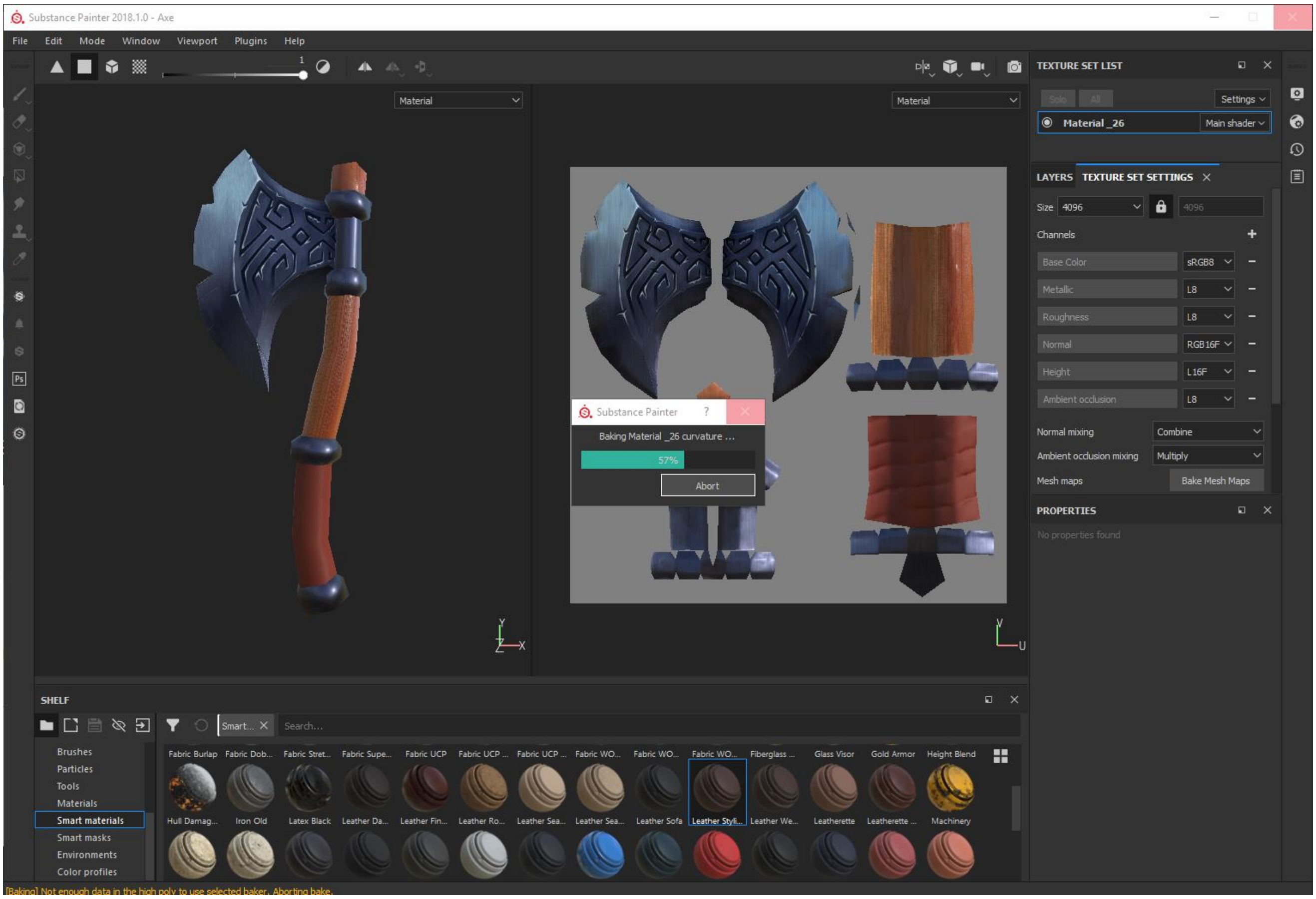
Click "Bake Mesh Maps"



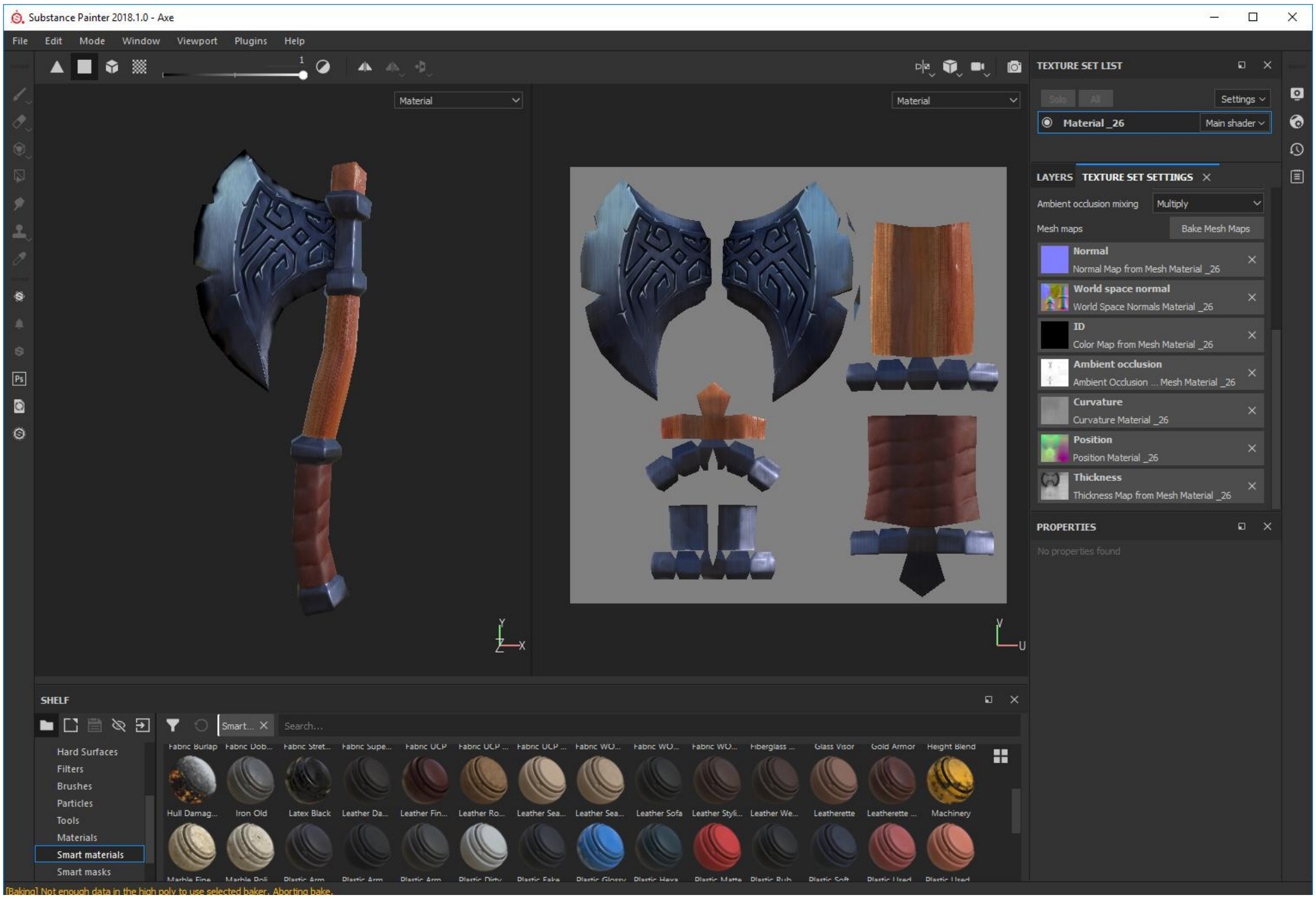
Select outpu size and click bake button

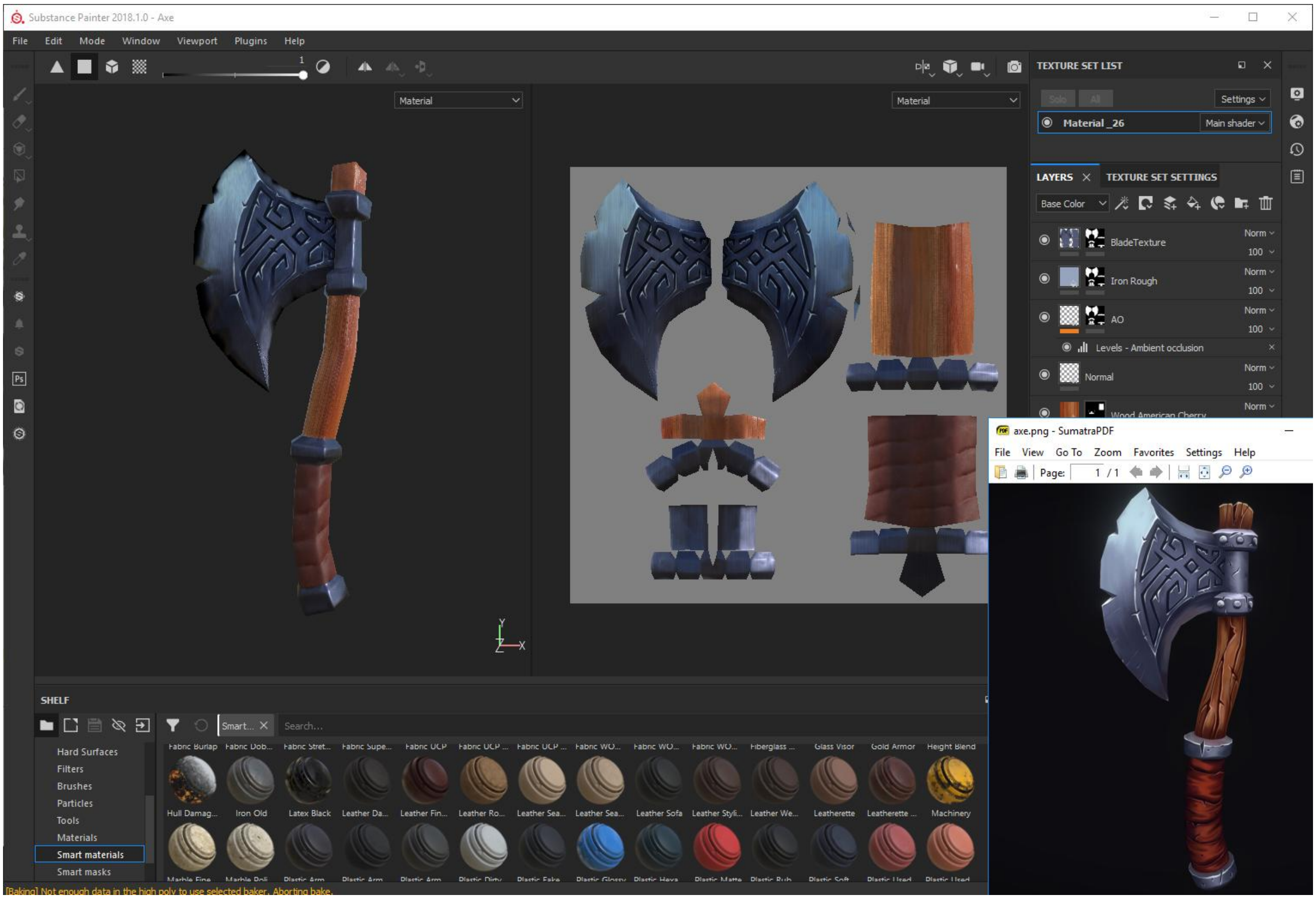


Baking...



Done


Substance Painter 2018.1.0 - Axe
File Edit Mode Window Viewport Plugins Help
Material
Material
TEXTURE SET LIST
Settings
Material _26
Main shader
LAYERS TEXTURE SET SETTINGS
Ambient occlusion mixing
Multiply
Mesh maps
Bake Mesh Maps
Normal
Normal Map from Mesh Material _26
World space normal
World Space Normals Material _26
ID
Color Map from Mesh Material _26
Ambient occlusion
Ambient Occlusion ... Mesh Material _26
Curvature
Curvature Material _26
Position
Position Material _26
Thickness
Thickness Map from Mesh Material _26
PROPERTIES
No properties found
SHELF
Smart...
Search...
Hard Surfaces
Filters
Brushes
Particles
Tools
Materials
Smart materials
Smart masks
[Baking] Not enough data in the high poly to use selected baker. Aborting bake.


Substance Painter 2018.1.0 - Axe
File Edit Mode Window Viewport Plugins Help
Material
Material
TEXTURE SET LIST
Settings
Material _26
Main shader
LAYERS TEXTURE SET SETTINGS
Base Color
BladeTexture
Iron Rough
AO
Levels - Ambient occlusion
Normal
Wood American Cherry
axe.png - SumatraPDF
File View Go To Zoom Favorites Settings Help
Page: 1 / 1
SHELF
Smart...
Search...
Hard Surfaces
Filters
Brushes
Particles
Tools
Materials
Smart materials
Smart masks
[Baking] Not enough data in the high poly to use selected baker. Aborting bake.